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ABSTRACT

Part of a study of program management procedures in the campus-based and Basic Educational Opportunity Grant programs reports on the design of the site visit component of the study and the results of the student survey, both in terms of the yield obtained and the quality of the data. Chapter 2 describes the design of sampling methodology employed for the identification and selection of the desired respondents including: the survey specifications; the development of the respondent universe; and the definition, stratification, and selection of primary and secondary sampling units. Chapter 3 provides a brief description of the survey operations including difficulties encountered. Chapter 4 presents the yield of each student survey component; i.e., financial aid records and student questionnaires. Chapter 5 describes the preparation of estimates from the national sample, and in Chapter 6 the accuracy of the estimates, including the calculation and presentation of sampling errors, is discussed. Attached appendices include data on individual school response rates and unweighted marginal distributions for each student survey instrument item. (LC)

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A STUDY OF PROGRAM MANAGEMENT PROCEDURES IN THE CAMPUS-BASED AND BASIC GRANT PROGRAMS

TECHNICAL REPORT NO. 1:
SAMPLE DESIGN, STUDENT SURVEY YIELD AND BIAS

November 20, 1979

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1

INTRODUCTION

1.1: Preface

This is a report on the sampling design and yield of a survey to provide a detailed assessment of the student financial aid practices in 172 American colleges, universities, vocational schools, and other postsecondary institutions. This evaluation effort included the collection of voluminous statistical data on the distribution of student aid at each school; extensive inquiries into institutional management practices; and surveys of students, both those who received aid and those who did not. Most of these data will be analyzed and presented (along with the results of a mail survey currently being conducted of an additional 875 institutions) in a series of upcoming research reports to be issued by Applied Management Sciences, Inc. The present report deals only with the design of the site visit component of this study, and with the resulting outcome of the student survey both in terms of the yield obtained and the quality of the data.

The overall purpose of this project was to evaluate the effectiveness and efficiency of institutional operating procedures in both the Campus-Based1/ and Basic Educational Opportunity Grant (BEOG) Federal student financial assistance programs. In turn, this required that the study include the treatment of such specific concerns as:

1/Defined as those Federal student assistance programs which are administered by the staff of eligible institutions. Included are: the Supplemental Educational Opportunity Grant Program (SEOG); the National Direct Student Loan Program (NDSL); and the College Work Study Program (CWS).

- factors influencing the decision of institutions to participate in the programs;
- factors affecting the abilities of schools to implement the programs in accordance with the needs of students, the requirements of the individual institutions, and the regulations and guidelines issued by the U.S. Office of Education (USOE);
- factors affecting the participation of students in these programs, including counseling, determination of student need, aid packaging;
- factors related distributive equity, i.e., to the systems used by schools to determine which students will receive aid, what kind of aid, and how much aid; and
- other factors, such as problems introduced by Federal record-keeping and application validation requirements, issues of timing and scheduling of aid, and so on.

The Office of Education's interest in examining these programs and their procedures is threefold: to evaluate the equity of the distribution of Federal financial assistance funds to students with similar characteristics; to identify the aid practices and procedures that best meet the objectives of the Federal programs; and to provide the data needed to develop a behavioral model of the flow of U.S. student aid dollars.

1.2: The Contents of this Report

The site visit survey gathered information on financial aid from a diversity of respondents using formal data collection instruments. These data are voluminous and will serve as the basis for most of the analyses to be undertaken during the remainder of this project. This report, however, focuses on the way in which these data were collected and their quality. Chapter 2 of this report describes the design of sampling methodology employed for the identification and selection of the desired respondents including: the survey specifications; the development of the respondent universe; and the definition, stratification and selection of primary and secondary sampling units. Chapter 3 provides a brief description of the survey operations including difficulties encountered. Chapter 4 presents the yield of each student survey component, i.e., financial aid records and student questionnaires. Chapter 5 describes the preparation of estimates from the national sample. Chapter 6 discusses the accuracy of the estimates including the calculation and presentation of sampling errors. Finally, the attached appendices include data an individual school response rates and unweighted marginal distributions for each student survey instrument item.

2

DESIGN OF THE SURVEY

2.1: Overview

This research effort had two basic objectives which effected the development of an acceptable survey design: a) to describe the existing procedures that are employed by institutions of postsecondary education in the operation of Federal financial aid programs, and b) to evaluate differences in procedures, particularly as they impact on three main program objectives:

- to assist in making available the benefits of postsecondary education to qualified students in institutions of higher education by:
  - achieving or maintaining acceptable rates of participation of various types of students at various levels and types of institutions,
  - minimizing the variance in loan-work burdens (i.e., that portion of the student's educational need met by loans and/or work) across different types of students at similarly priced institutions, and
  - ensuring adequate access to loans and work so that potential students of postsecondary education might have sufficient funds to pay for their education;
- to control the cost to institutions of administering financial aid programs including indirect costs necessary as a result of the presence of such aid; and
- to control the cost to the Federal government of administering the programs.

The operative words here were "describe", "evaluate", "students" and "institutions". For beyond the usual sampling considerations of precision, accuracy and practicality, these components of the design had the greatest effect upon the nature of the framework which was ultimately adopted. The optimal design for population estimates was in conflict with the analytical and policy concerns that were associated with the evaluative goals. Collecting data on both institutions and students imposed a "design effect" arising from the sampling of clusters. Moreover, each of these were closely interrelated with the need to maximize the efficiency of the survey sample within the constraints of the available resources.

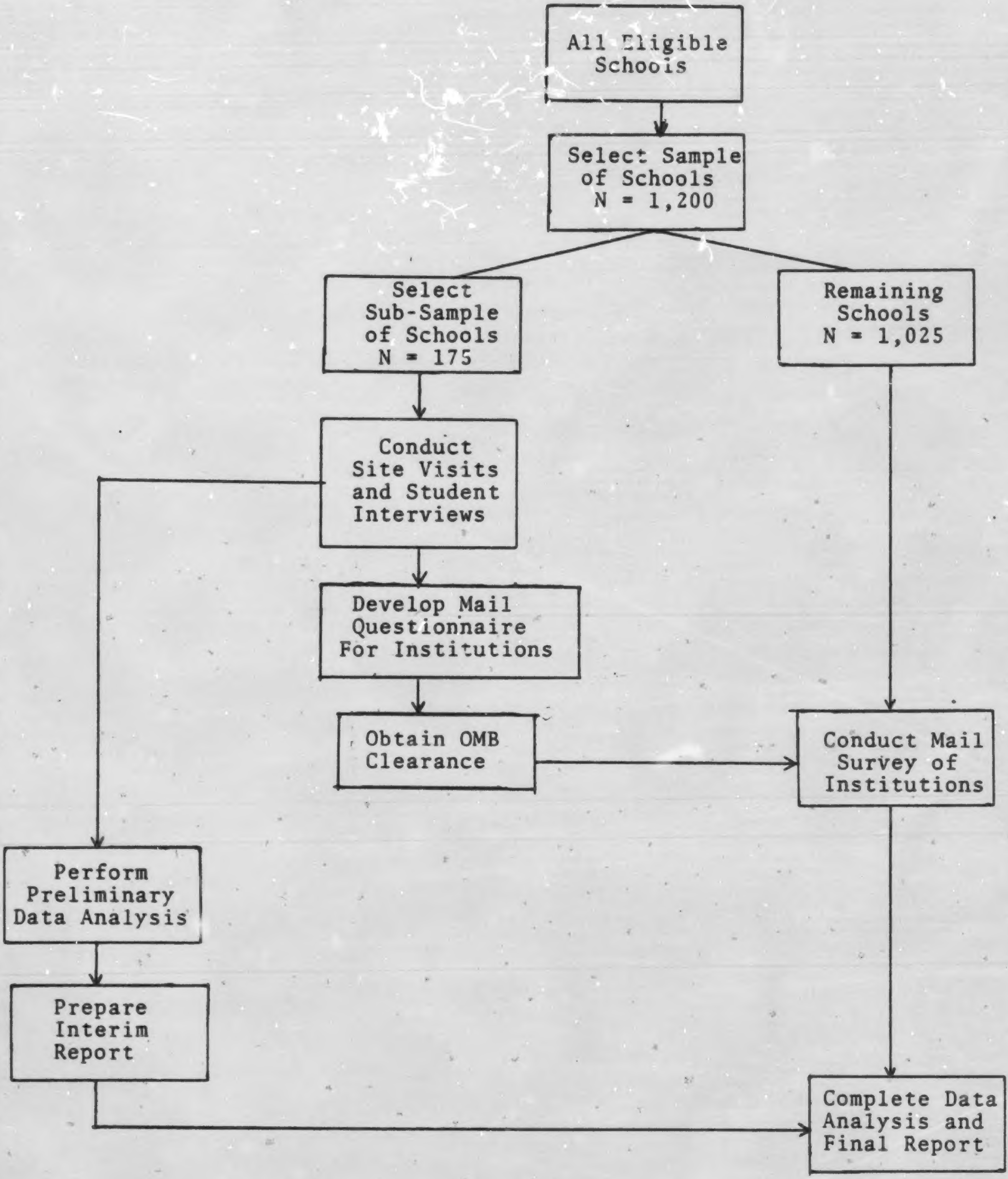
The problem, then, was one of resolving conflicts between competing design factors. Trade-offs had to be made by necessity, and in some cases these resulted in the acceptance of a loss in one area to achieve gains elsewhere. To the extent possible, these losses have been examined and evaluated as to their effect upon the resulting survey data. These discussions are provided in Chapters 4, 5 and 6. The remainder of this chapter deals with the way in which the sample was designed and where compromises were made.

The following summarizes the selected sampling procedures that were employed; a digrammatic breakdown of the major steps is provided in Exhibit 2.1:

PHASE I

1. All eligible postsecondary institutions were stratified along the dimensions shown in Exhibit 2.3 on pages 2.35 and 2.36.
2. A random sample of 1,200 institutions was selected using proportional selection, e.g., the number of institutions selected from each cell was proportional to the total cell population.
3. A random subsample of 175 institutions was then selected from those schools obtained in Step 2 also using proportional sampling with two exceptions. The sample was allocated between the proprietary and non-profit sectors on the basis of size as measured by eligible students and 25 schools were oversampled from the public four-year stratum.
4. For each institution selected in Step 3 students were stratified by year in school (e.g., freshman, sophomore, etc.) and a random sample of 125 students selected (unadjusted for the finite population correction, i.e., if the total enrollment was "small" the sample was decreased) proportionately allocated across student strata. Next, this sample of students was matched against a roster of the institution's financial aid recipients.

EXHIBIT 2.1: DIAGRAM OF SURVEY PLAN


All Eligible Schools
Select Sample of Schools N = 1,200
Select Sub-Sample of Schools N = 175
Remaining Schools N = 1,025
Conduct Site Visits and Student Interviews
Develop Mail Questionnaire For Institutions
Obtain OMB Clearance
Conduct Mail Survey of Institutions
Perform Preliminary Data Analysis
Prepare Interim Report
Complete Data Analysis and Final Report

5. If either the number of aid recipients or non-aid recipients in the random sample was less than 60, the sample was augmented by stratifying and randomly selecting additional students so as to ensure a minimum sample of 60 in each group per school (if the total number of each was less than 60 then the entire group was selected). Here again, proportional representation was maintained across student strata.
6. Site visits were conducted to the sample of 175 institutions selected in Step 3 and the Institution Questionnaire was administered to the appropriate respondents (e.g., Financial Aid Officer, Chief Fiscal Officer).
7. During the site visit, the Student Questionnaire was administered to the entire sample of students selected in Steps 4 and 5 (this included financial aid recipients as well as non-recipients).
8. For those students included in the survey who were also financial aid recipients, their financial aid records were reviewed and data transcribed using the Record Review Form. In addition, a random sample of ten (10) financial aid records for students who had withdrawn from school (if available) was selected and similar data were collected.

PHASE II

9. Perform preliminary analyses using site visit data and develop a mail questionnaire for institutions.
10. Prepare Clearance Package and obtain OMB approval for the mail survey instrument.
11. Conduct the mail survey of institutions using the schools selected in Step 2 and not selected in Step 3 (i.e., 1,025 schools).
12. Complete data analysis and prepare the final report.

Therefore, the first phase of this study (i.e., the subject of this report) consisted of the following nominal samples: (a) 175 postsecondary institutions; (b) approximately 125 students per institution of which at least half were financial aid recipients; (c) approximately 60 financial aid records matched to the students selected in (b) per institution; and (d) ten financial aid records per institution of students who had withdrawn from school.

The remainder of this chapter consists of five sections: the first provides a discussion of the various considerations that influenced the development of the sampling design; the second defines the populations from which the samples were drawn; the third describes the logic behind the selected stratification scheme; the fourth provides the theory used to calculate the required sample sizes for institutions and students; and the last presents the sample sizes which were used.

2.2: Survey Design Specifications:

As indicated in the previous chapter, this evaluation effort sought to examine two study populations - postsecondary institutions and postsecondary students - with respect to a broad spectrum of research questions. Furthermore, the expected outcomes were both descriptive (i.e. estimates of population paremeters) and evaluative (i.e., explanations of observed variations). In terms of the development of the survey plan, these various requirements imposed significant constraints upon the range of feasible design alternatives and guided the selection of an overall sampling strategy. Before presenting the details of the actual framework used, this preliminary discussion will attempt to place the design into a broader context and, hopefully, provide the reader with a better understanding of the evolution of this survey plan.

a) Study populations and data requirements

The research objectives of this study were such that the characteristics of postsecondary institutions and students were to be examined with respect to a large number of factors. At the outset this presented two major problems: 1) the choice of a method for selecting students; and 2) a way to simultaneously satisfy the selection criteria for both institutions and students. To begin with, it is virtually impossible to array the entire population of postsecondary students and to select an appropriate sample using simple random sampling. Therefore, some type of clustering mechanism had to be introduced into the design. That is, the sampling process had to begin with the selection of clusters of students (i.e., postsecondary institutions) and then specify the procedures required to draw a sample of students from each cluster. Secondly, since the sample of schools would define the population from which students would be selected, the construction of the first sample had to be performed in a manner which also accommodated the second. That is, the choice of stratifying or controlling variables had to, when taken together, ensure a sample that was representative of both study populations.

Next, the range of data to be collected, largely determined the appropriate data collection methodology for both students and institutions. To begin with, it was believed that the data required from students were such that an interviewer was needed to ensure the consistent interpretation of certain questionnaire items (e.g., those dealing with student aid forms and with education expenses) and without the incentives provided by a personal interview, it was also believed that the response rate for a student survey would fall well below an acceptable level. Secondly, the information to be obtained from institutions was complex, voluminous and in the case of certain data items (e.g., unit operating costs) capable of collection only through an on-site visit. Finally, give the burden imposed upon the respondents by this data collection effort it was also important to provide assistance in gathering the required data, particularly the information desired from student financial aid records.

As a result of these constraints, it was initially decided that the selected sampling strategy would be a stratified cluster design (i.e., schools would be stratified and then randomly selected, while students would be randomly selected from within the chosen institutions) and that the primary method of data collection would be through on-site visits to each of the participating institutions.

b) Analytical constraints

The design of an appropriate sampling framework for this study was further complicated by problems which are becoming increasingly more common in the development of sample surveys--a multiplicity of research objectives and a limited theoretical foundation. While the theory and literature of survey sampling have been developed almost exclusively for univariate analyses of the data (e.g., estimates of population parameters) it has become of increasing importance (as it was for this study) to estimate the characteristics of diverse subclasses of the population and to discover the relationships between these separate domains. The two major types of analytical concerns imposed upon this design are described below.

1) Descriptive Questions

For the most part, questions included in this category (of which there were approximately 100) were of the form, "What proportion of ______________ have the characteristic ________________?" Such questions fall into the realm of the typical descriptive survey--the desired outputs are estimates of totals, means, and proportions for the populations under study. Examples of the descriptive issues include:

- Institutional Questions
  - Construct a typology of postsecondary education counseling procedures. What percentage of institutions from each institutional type fall into each category of the typology?
  - For each institutional type and each of the Campus-Based programs, what percentage of the institutions use each of the needs analysis systems?
  - Determine a typology of student aid packaging philosophies that are employed by institutions. What is the percentage of each institutional type that employs each of the packaging philosophies?
- Student Questions
  - How do potential students learn about student aid programs?
  - What fraction of students express satisfaction with their aid office experiences?
  - What fraction of BEOG recipients receive SEOG? NDSL? CWS?

When dealing with analytical objectives of this nature, the design constraints center around the specification of a sampling framework which yields the most precise estimate of the desired population parameter. That is, within the limits of the available resources, the goal is to minimize the variance of an unbiased estimate for the population. Normally, such an objective, along with the analytical goals of the study, would be sufficient for the development of an appropriate survey strategy. However, this research effort was made more complex by the addition of an evaluative component.

2) Evaluative Questions

As Dalenius has stated "... the ultimate aim of statistical studies is to provide a rational basis for action." [1] The action one takes, however, is a function of the nature of the problem. In the case of the descriptive problems discussed above, the action is to be taken on the basis of the characteristics of a population (or some portion) as it exists as of a certain date. It is a static view of reality.

In the analytic problem, the view is dynamic. Action is to be taken on the basis of the relationships between, and causes of, the observed characteristics of the population. In such cases, the typical question being asked is of the form, "What will be the effect on "Y" if factor "X" is changed?" The analytical problem involves the "... search for mechanisms capable of explaining the observed frequencies and of predicting future frequencies."[2] Examples of the evaluative issues include:

- Institution Questions
  - By institution type, what fraction of the time of full-time financial aid office staff are spent on various work functions in the aid office? Are there systematic differences among types of institutions which lead to differences in student outcom
  - By institution type, what procedures are used to inform students of their aid packages and to deliver awards to students? What are the costs of administering the aid programs for institutions that follow each procedure category? For each student type-institution type pair, what is the participation rate of students attending institutions that follow each procedure category? Are there any systematic differences?

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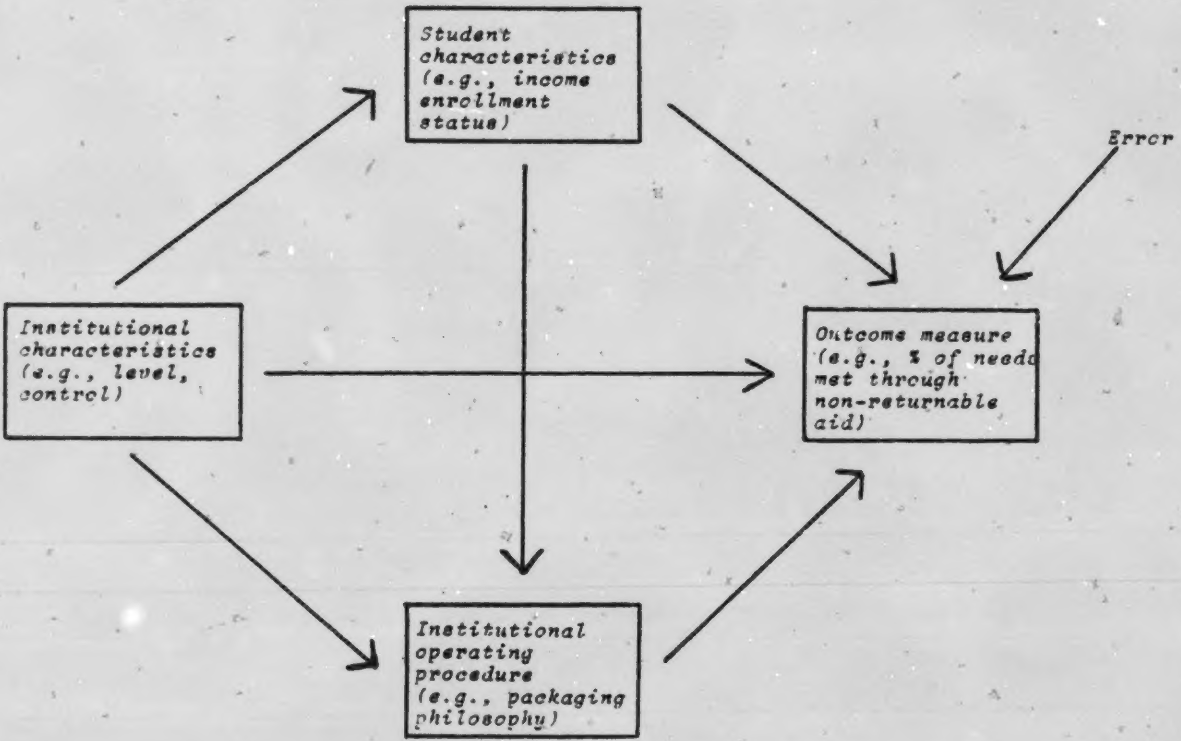
[1] Dalenius, Tore, "Designing Descriptive Sample Surveys," New Development in Survey Sampling, ed. N.L. Johnson and H. Smith, Wiley Interscience, 1969, p. 391.

[2] Dalenius, Op. Cit., p. 391.

- Student Questions
  - -- Are there any significant relationships between the type and amount of aid packaged and student characteristics such as enrollment level, field of study, achievement, etc.? Are there systematic differences among types of institutions?
  - -- For each institution type and budget procedure/aid packaging philosophy combination, what are the participation rates of the various types of students and what are the loan-work burdens faced by these types of students? Are there systematic differences among types of institutions?

In general, questions of this nature can be schematically illustrated as in Exhibit 2.2:

EXHIBIT 2.2: GENERAL LINEAR MODEL OF STUDENT AID OUTCOMES


Student characteristics (e.g., income enrollment status)
Error
Institutional characteristics (e.g., level, control)
Outcome measure (e.g., % of need met through non-returnable aid)
Institutional operating procedure (e.g., packaging philosophy)

This schematic model can be further expressed in terms of a general linear model:

Dependent Variable (i.e., the outcome measure) = (constant) + (main effect of student characteristics) + (main effect of institutional characteristics) + (main effect of institutional operating procedures) + (student characteristic - institutional characteristic interaction effect) + (student characteristic - institutional practice interaction effect) + (institutional characteristic - institutional practice interaction effect) + (error)

Under such a range of analytical objectives, the design of the sampling strategy had to ensure that the desired comparisons and relationships could be tested with a specified "power" and at a minimum total cost. Furthermore, to the extent that these evaluative goals conflicted with those of a purely descriptive nature, a compromise had to be made in order to facilitate the design of a complete research framework.

The theoretical foundations of survey design, however, still remain largely concentrated in the area of descriptive surveys and, for the most part, ignore the design of evaluative surveys. Sedransk[3] has made intensive investigations of the special problems of optimum allocations for analytical studies of the differences of means from survey samples, but these apparently have not been widely applied. Cochran[4] provided a discussion of diverse weighting methods for differences of subclass means. Sampling methods for multi-factor comparison from census data were explored by Keyfitz,[5] while Kish[6] continued the discussions begun in his earlier text[7] and previous articles.[8] Kish, in his text, sums up the problem with "... the answers we can offer do not measure up to the magnitude and complexity of the questions we have posed." Although written more than ten years ago, this statement is still applicable. The most which can be expected from a complex analytical survey is a reasonable compromise between the competing demands of descriptive and evaluative outcomes within the constraints of available sampling theory. Since a unique solution cannot be obtained which optimizes the design over a range of analytical objectives, a certain amount of "information loss" is to be expected whenever a sample is selected. Minimizing this loss is the goal of any design process.

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[3] Sedransk, J. (1957), "Designing Some Multi-Factor Studies," JASA (62), 1121-1139. Sedransk, J. (1965), "Analytical Surveys With Cluster Sampling," JRSS-B (27), 264-278. Sedransk, J. (1965), "A Double Sampling Scheme for Analytical Surveys," JASA, 985-1004. Sedransk, J. and Gordon Booth (1969), "Planning Some Multi-Factor Comparative Surveys," JASA, 560-574.

[4] Cochran, W.G. (1965), "The Planning of Observational Studies of Human Population," JRSS-A (128), 234-265.

[5] Keyfitz, N., (1953), "A Factorial Arrangement of Comparisons of Family Size," Am. Jour. Soc. (58), 470-480.

[6] Kish, Leslie, "Design and Estimation for Subclasses, Comparisons and Analytical Statistics" published in New Developments in Survey Sampling, ed. N.L. Johnson and H. Smith, Wiley Interscience, New York, 1969.

[7] Kish, Leslie, Survey Sampling, John Wiley & Sons, N.Y., pp. 582-600.

[8] Kish, L. (1961), "Efficient Allocation of a Multi-Purpose Sample," Econometrica (29), 363-385. Kish, L. and Frankel, M. (1968), "Balanced Repeated Replications for Analytical Statistics," Proceeding of the Social Statistics Section of ASA.

As previously discussed, data were required from this study about multiple observational units--students, postsecondary institutions, as well as specific subclasses of each. The design structure resembled a factorial experimental model consisting of several factors (i.e., cross-classifications of institutional and student characteristics) of interest, each of which could be further divided into several categories (e.g., 4-year and 2-year institutions). For each factor, comparisons were then to be made for specific variables (e.g., average awards) across factorial categories. Although procedures have been developed to optimize the design of a sample of a single variable, the theory is limited for a multivariate survey[9/] as was proposed for this study.

Given the general specification of the problem provided above, the design process included the definition of: the comparisons of interest; the appropriate estimates desired; the proposed analytical techniques; the desired precision; and, the selection of the sample such that:

- the design was economical and provided the specified precision/power at minimum cost;
- appropriate estimates or approximations of the standard errors could be produced in order to form the basis for statistical inference; and
- the design was practical and capable of implementation without unnecessary complexity, which might have resulted in the introduction of unwanted bias and error.

[9/] Kish, L. and Anderson, D.W., "Multivariate and Multipurpose Stratification," Journal of the American Statistical Association (73) March 1978.

These criteria were obviously in conflict (e.g., cost constraints may lead to larger than desired variances, practicality may lead to sample designs with larger biases than desired in the estimates). Therefore, the preparation of an effective sample design had to seek a balance and blending of these multiple considerations.

On the basis of the analytical considerations described above, the following decisions were made with regard to the design of the survey:

- the evaluative questions, since they imposed a greater constraint on the sampling scheme[10] were chosen as the primary determinent for the design of an appropriate framework;
- the sampling frame was to be constructed so as to ensure the inclusion of the desired population subclasses (these were analytical domains defined by the "control" variable specified for institutions and students); and
- the size of the sample and its allocation to population subclasses would be determined by the number of observations required to provide adequate power for the proposed statistical tests.

2.3: Definition of Sampling Populations

The population is defined as "... the aggregate from which the sample is chosen."[11] It is the group about which the information is desired, i.e., the target population. For the purposes of this survey, the target populations were defined as follows:

- Institutions - the universe of institutions[12] which for the 1977-78 fiscal year,[13] were eligible to participate in any of the following programs: Basic

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[10] This is primarily due to the inclusion of interactions.

[11] Cochran, William G., Sampling Techniques, John Wiley and Sons, Inc., New York, 1963.

[12] Under existing program operations, major branch campuses are considered to be separate entities. Therefore, for the purpose of this study they were counted as individual institutions if they were so defined for program eligibility.

[13] Although the survey was conducted during FY 1978-79, the sample had to be drawn using data available from FY 1977-78 since these were the most current at the time.

Educational Opportunity Grant (BEOG); Supplemental Educational Opportunity Grant (SEOG); National Direct Student Loan (NDSL); or College Work Study (CWS). This included institutions which had not signed a Term of Agreement and BEOG non-participating institutions[14] but excluded hospital-based programs[15] and those for which classifying data were not available.

- Students - defined as all undergraduate[16] students currently enrolled at least half-time.
- Student Financial Aid Records - the population of active and unduplicated[17] student records currently on file in the student financial aid offices of the selected institutions.

The population of institutions was constructed using data files from the BEOG Program Information and Monitoring System (PIMS), the Student Financial Aid Management Information System (SFAMIS) and, where necessary, the Higher Education General Information Survey (HEGIS). Specifically, this included the use of the BEOG Universe File, the Fiscal Operations Report (FISCOP) File, and the HEGIS Education Directory. However, the quality of these data were such that extensive revisions were required, carried out with the assistence of the American Coucil on Education (ACE), before the actual selection could be made. Hospital-based schools and those for which complete classifying data were not available were excluded prior to stratification and selection.

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[14] Covered under the Alternate Disbursement System (ADS).

[15] These have been excluded due to their receiving the majority of their funding through the Health Manpower Training Act. These schools were considered to be of minimal concern from the perspective of USOE policy development.

[16] Even though for FY 76 approximately six percent of NDSL borrowers were graduate students and about six percent of CWS funds went to graduate students, such students were excluded from this study due to the disproportionate costs associated with obtaining a statistically valid sample of graduate students.

[17] Unduplicated in the sense that the unit of observation was the student and not the record. Therefore, multiple records for a single student were counted as one observation.

The population of students was constructed from student data at each of the selected institutions. The schools were requested to develop lists of only those undergraduate students enrolled at least on a half-time basis.

The population of student records were developed by the participating financial aid offices and were restricted to: 1) those which were being maintained for *current* students; and 2) one record per student--duplicate or multiple files were counted as a single entity. The sample of student records consisted of selections drawn from each of the following groups:

- records of students selected to participate in the student survey *and* who were financial aid recipients or applicant nonrecipients (if the institution maintained such records); and
- records of students who received financial aid but for some reason was withdrawn from school..

2.4: The Development of the Sampling Frame

a) Needs for stratification

In order to ensure the inclusion of specific population subgroups, stratification was employed for the purpose of creating a set of independent domains of interest. The basic characteristics of stratified sampling are: a) the entire population of sampling units is divided into distinct subpopulations called strata; b) within each stratum a separate sample is selected from all the sampling units comprising that stratum; c) for the sample selected in each stratum a separate statistic is computed and each is then "weighted" to form a combined estimate for the entire population;[18] and d) the variances are also computed separately for each stratum and weighted to create a population estimate. As described by Kish,[19] there are three principal reasons for resorting to stratification:

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[18] That is, the population mean is equal to the sum of the H strata means $\bar{Y}_h$, each multiplied by its proper weight W_h (the inverse of the probability of selection); $(\bar{Y}) = \Sigma W_h \bar{Y}_h$.

[19] Kish, Leslie, *Survey Sampling*, John Wiley & Sons, New York, 1965.

- to decrease the variances of the sample estimates to the degree that the stratum means diverge and that homogeneity exists within strata;
- to allow for the use of different (data collection) methods and procedures within strata; and
- to establish strata such that they coincide with subpopulations which have been designated as domains of study for analytic purposes.

As discussed in a preceding section, emphasis was placed primarily upon the latter criterion. The difficulty arose from the multipurpose nature of this study. Traditionally, sampling theory has focused upon the effects of a single stratifying variable on a single study variable, but, the more common situation involves multiple stratification variables and multipurpose analytical objectives.

To begin this discussion, consider postsecondary institutions as sampling units representing clusters of students. As discussed before, the total population of postsecondary students could not be arrayed for the purposes of selecting a sample, therefore, the selection of students had to first involve the selection of institutions (clusters) from which the student sample would be drawn. As noted in the literature,[20] the efficient use of stratification has a much greater effect on reducing the variance of the estimates when used in the selection of clusters than in the selection of elementary units due to the higher correlations associated for means of grouped observations (the "ecological correlation" of group means). However, there is also another aspect of stratification which is often overlooked by most authors, the creation of distinct domains for analysis. The two are not necessarily unrelated "... because interest in differences between statistics for domains should be related to gains from stratification."[21] The problem is brought about when the choice of analytical domains is based upon considerations which fail to coincide with the best choices for strata.

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[20] See Hansen, M.H., W.N. Hurwitz and W.G. Madow, (1953). Sample Survey Methods and Theory, Volume I, John Wiley & Sons, New York, Sec. 7.4.

[21] Kish, L. and D.W. Anderson. "Multivariate and Multipurpose Stratification," JASA, March 1978, p. 25.

> In particular, several or many variables may be used for creating domains, well beyond the needs of reducing variances for the entire sample. Furthermore, the number of domains from any variable needed for analysis may also be larger than the number of classes needed for reducing overall variances. This conflict may be especially great for clustered selections, where both the availability and the effects of stratifying variables are greater.[22]

The goal, then, was to choose strata boundaries such that the analytical domains were accommodated and the variances of the estimators were minimized. The following discussion first examines these goals for the stratification of institutions and then for the selection of students.

b) Stratification of institutions

Although a heuristic approach to multivariate stratification offered by Kish and Anderson[23] was considered too unwieldy for actual use, it provided some useful guidelines:

- the use of more than one stratifying variable, particularly in a multipurpose study, provides significant reduction of the variances of the estimates;
- when several variables are of interest in the study, the use of multiple stratifying variables provides the best compromise between the competing objectives (i.e., each variable may have its own best stratifier);
- multiple stratifiers should provide larger gains in reduction of variance than many strata derived from a single stratifier, particularly when strata boundaries approach optimal allocation; and
- within reason, increasing the dimensionality of the stratification tends to increase the gains in reducing variance.

Furthermore, according to traditional sampling theory, the best variable on which to stratify is that which is most highly correlated with the variable(s) of interest. For example, if average financial aid award was the variable of concern, the best available stratifier would be cost of education due to its close relationshp with financial aid levels. However, as shown by Kish, this same variable, if used alone, might have a negative effect upon the variance of another dependent variable.

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[22] Ibid., p. 25.

[23] Ibid., p. 25.

The above approach to stratification does, however, ignore the other major criteria for the selection of appropriate strata--analytical interest and policy relevance. These two considerations are, of course, interrelated. Population subgroups which are of interest from the perspective of developing Federal policy are generally also of analytical concern.

Accordingly, the approach which was taken was to identify a set of potential stratifying variables and to evaluate each relative to its correlation with the study variables (e.g., operations, procedures, and student outcomes), its correlation with the other stratifiers, and its relevance for analytical and policy purposes. The goal was a set of stratifying variables which achieved maximum correlation with the study variables and minimum correlation with each other (the ideal being a set of orthogonal "factors"). As a first step in this process, discussions with individuals in the field of student financial assistance and a review of related literature identified the following variables as the best possible stratifiers:

- the highest level of degree granting and, for proprietary schools, the type of offering;
- the type of financial control;
- the geographic location of the institution;
- the size of the institution;
- the average cost of education;
- the selectivity with which students are admitted;
- the school's participation in the Federal student assistance programs; and
- the State's effort with regard to need-based student financial assistance.

A discussion of their applicability as stratifiers is presented below.[24/] The sequence also reflects the order in which they were to be entered into the selection process.

b.1) Control

Control was defined for the purpose of this study (as well as by the Bureau of Student Financial Assistance-BSFA, the National Center for Education Statistics-NCES, and the American Council on Education-ACE) as Public, Private non-profit, and Proprietary. The inclusion of this variable provided representation of differences in: student costs (e.g., generally higher in Privates than in Publics) which impacts on the distribution of financial aid dollars; administrative capability which impacts on the types of operating procedures employed; administrative structure (particularly in the case of public institutions which must be responsive to the State legislature); educational objectives; and student populations.[25/] For example, while private non-profit institutions account for 27.4 percent[26/] of the total USOE education assistance recipients, they account for approximately 37 percent of all BEOG recipients. Furthermore, despite the fact that private non-profit institutions account for 40 percent of all eligible schools, they receive only 19 percent of the funds under SEOG.

This stratification variable was also necessary due to the markedly different sampling problems reflected in this grouping. Although public and private non-profit institutions are relatively stable over time, proprietary schools are characterized by instability. These

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[24/] It should be noted that during the development of the study many other variables were considered as potential stratifiers, e.g., predominant race, Ph.D. granting status, Title III participation, NDSL default rate. However, the listed set were determined to be the most relevant.

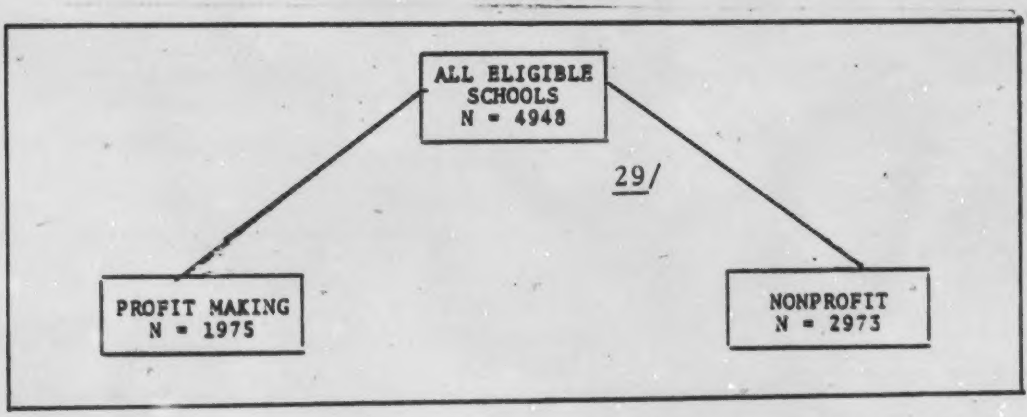
[25/] See, for example, Peng, S., Bailey, J.P., and Eckland, B.K., "Access to Higher Education: Results from the National Longitudinal Study of the High School Class of 1972" Educational Researcher, Vol. 6, No. 11, December 1977, pp. 3-7.

[26/] All data drawn from the American Council on Education's Higher Education Panel Report Number 36, September 1978, p. 12.

schools traditionally fill an important gap in postsecondary education by being able to quickly respond to a demand for specific career-oriented training programs. However, as the demand changes, proprietary schools are faced with declining enrollments and are often forced to close.[27] Therefore, a sample of such schools was expected to very likely result in a significantly higher rate of survey nonresponse.

Consequently, a higher rate of oversampling was felt to be required in order to achieve the desired sample size and, purely from the perspective of operational feasibility, such a stratification was thought to be warranted.

Finally, Proprietary schools presented a different and more severe range of problems to USOE than those found in the non-profit sector. This has been well substantiated in a recent study conducted by the DHEW Audit Agency.[28] Therefore, on the basis of these concerns, and those indicated above, the first level of stratification was as follows:



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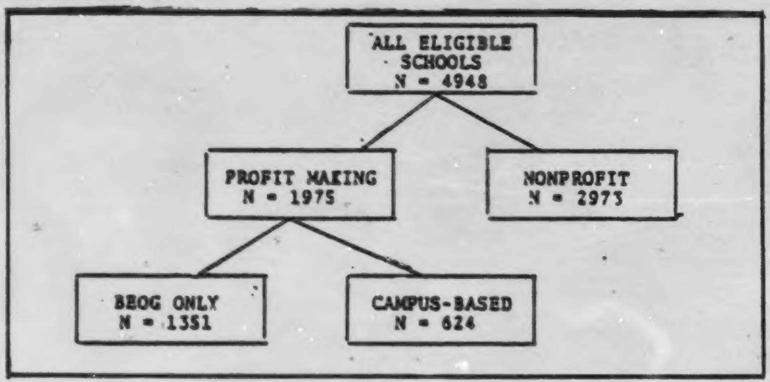
[27] In a study conducted by Applied Management Sciences for the Armed Forces Vocational Testing Group (Contract Number F41609-75-0047) it was found that the annual turnover rate for proprietary schools was on the order of 25-30 percent. This rate was also confirmed through discussions with the National Association of Trade and Technical Schools.

[28] See Student Financial Aid Programs at Proprietary Vocational Schools, HEW Audit Agency, May 1978.

[29] As previously discussed, this excluded hospital-based schools and institutions for which classifying data were not available.

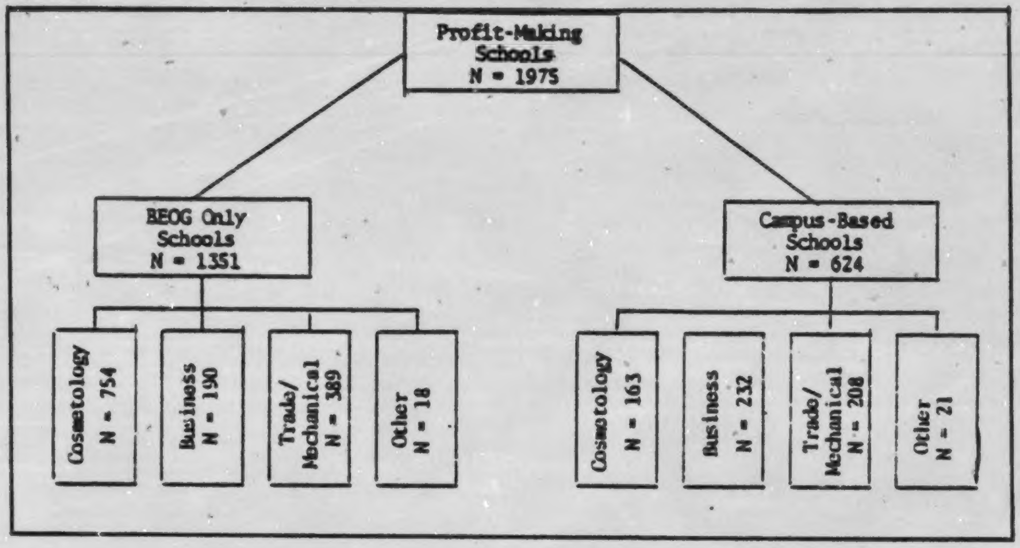
b.2) Participation in Federal student financial assistance programs

Such participation was defined as a dichotomous variable: schools which participated in both BEOG and the Campus-Based programs; and schools that participated only in the Basic Grant program. This stratification provided an effective differentiation between schools on the basis of their operating procedures (i.e., BEOG-only schools have fewer and, most likely, less complex procedures) and on the basis of the costs of data collection (i.e., the BEOG-only schools would involve fewer person-days of effort). In addition, these differences were not well represented by the other stratifying criteria. Finally, as BEOG-only schools are found primarily in the proprietary sector, this stratifier was used only within the profit-making stratum. This yielded the following framework:



b.3) Proprietary schools - major program offering

This variable was defined as follows: Cosmetology, Business, Trade and Technical, and Other (i.e., theological and those for which offering data were unavailable). The primary reasons for including this stratifier were: 1) it represented differences in student populations in proprietary schools; 2) it was correlated with variations in education costs (e.g., generally higher in the technical schools); and 3) it coincided with differences in the accrediting associations. In terms of the last point, the accrediting associations (e.g., National Association of Trade and Technical Schools) are the major sources of training for the financial aid officers in their member schools. As a result, they largely determine the nature of the management procedures employed at the individual schools and were thought to account for most of the variation to be observed between proprietary schools. Therefore, this variable was used to stratify proprietary schools as follows:


Profit-Making Schools N = 1975
BEOG Only Schools N = 1351
Campus-Based Schools N = 624
Cosmetology N = 754
Business N = 190
Trade/ Mechanical N = 389
Other N = 18
Cosmetology N = 163
Business N = 232
Trade/ Mechanical N = 208
Other N = 21

b.4) State effort in student financial assistance

The definition of this variable was related to the number[30] of need-based student financial aid programs provided by the State in which the school was situated:

HIGH EFFORT:	5 or more programs (10 States)
MEDIUM EFFORT:	2-4 programs (24 States)
LOW EFFORT:	1 or fewer programs (16 States)

The inclusion of this variable was primarily related to its effect upon the complexity of aid packaging for schools in the State. That is, schools located in States with a greater number of programs were believed to have more complex management procedures and better trained financial aid officers in order to handle the added burden of numerous State assistance programs. In addition, the availability of State financial aid was felt to have a significant impact upon the average student loan-work burden--a major study outcome measure. Furthermore, since proprietary school students are generally excluded from such aid, the variable was only used to stratify schools within the Non-Profit stratum. This yielded the following framework within the Non-Profit sector:

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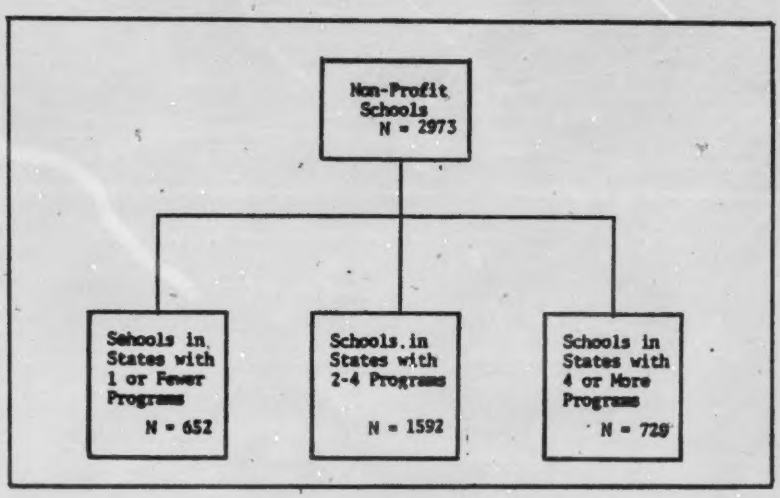
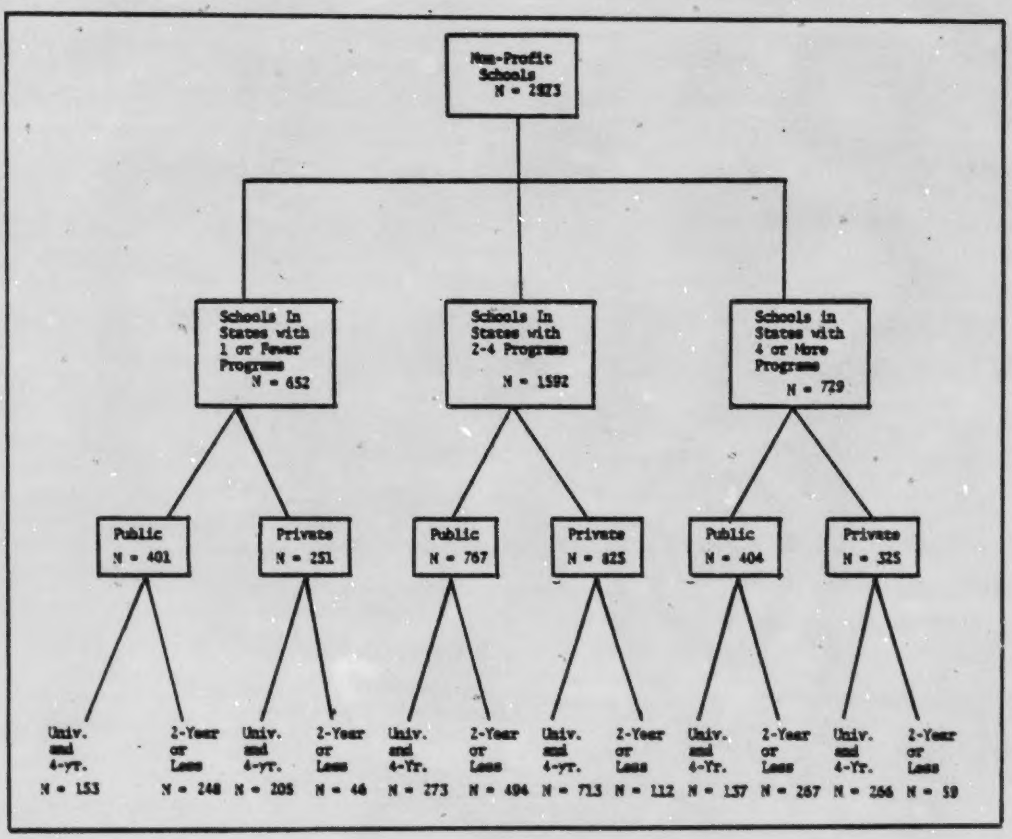
[30] Data were derived from Summary of State Student Financial Aid Programs, National Center for Higher Education Management Systems, Boulder, Colorado, 1977, p. 4.


Non-Profit Schools N = 2973
Schools in States with 1 or Fewer Programs N = 652
Schools in States with 2-4 Programs N = 1592
Schools in States with 4 or More Programs N = 729

b.5) Level

Level was defined as two groups: 1) Universities and 4-year schools; 2) 2-year schools and other institutions (i.e., those with programs less than 2-years). This definition is comparable to that used by the National Center for Education Statistics (NCES) for the HEGIS survey, by the Bureau of Student Financial Aid (BSFA) in reporting program statistics (e.g., the BEOG Institutional Agreement and Authorization Report), and by the American Council on Education (ACE) for the Higher Education Panel Reports. The reasons for including this variable were generally the same as those given for institutional control--differences in education costs (generally higher in 4-year schools), student populations, management practices and administrative environments. However, this variable was also related to differences in student access to financial aid resources, i.e., Baccalaureate degree granting institutions generally have a much greater access to public and private funds as well as a higher level of institutional discretionary funds.

Furthermore, the distribution of Federal funds across these institutional categories potentially represented a major area for policy development with respect to the equity of the current allocation of student financial aid. For example, whereas in FY 1977-78 universities accounted for 19.8 percent[31] of all BEOG recipients, they accounted for 23.8 percent of SEOG recipients, 24.6 percent of CWS recipients, and 36.1 percent of NDSL recipients. Similarly, 2-year colleges accounted for 38.9 percent of BEOG recipients, 24.6 percent of SEOG recipients, 23.9 percent of CWS recipients, but only 12.2 percent of NDSL recipients. Finally, the development of institutional "handbooks" for financial aid officers (one of the expected products of this study) required that consideration be given to differences in the operating environments in which the individual practitioners are placed. Therefore, this variable was included for the purposes of stratifying Non-Profit[32] institutions as follows:


Non-Profit Schools N = 2973
Schools In States with 1 or Fewer Programs N = 652
Schools In States with 2-4 Programs N = 1592
Schools in States with 4 or More Programs N = 729
Public N = 401
Private N = 251
Public N = 767
Private N = 825
Public N = 404
Private N = 325
Univ. and 4-yr. N = 153
2-Year or Less N = 248
Univ. and 4-yr. N = 205
2-Year or Less N = 46
Univ. and 4-Yr. N = 273
2-Year or Less N = 494
Univ. and 4-yr. N = 713
2-Year or Less N = 112
Univ. and 4-Yr. N = 137
2-Year or Less N = 267
Univ. and 4-Yr. N = 266
2-Year or Less N = 59

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[31] National Center for Higher Education Management Systems, Op. Cit., p.12.

[32] Differences in program length for proprietary (profit-making) schools were accounted for by stratifying on program offering.

b.6) Size

Size was the most difficult of the variables to define. Possible measures included: enrollment, either the total number or full-time equivalent (FTE); the total number of participants in the four aid programs under consideration (an unduplicated count would have had to be obtained); or the total Federal funding under the four aid programs. Since each would have yielded a different sample, the choice of an appropriate stratifying variable was extremely important.

Total Federal funding and the number of aid recipients both provided a measure that was sensitive to student characteristics, and which was an effective assessment of the institution's current level of effort with regard to financial aid. However, since actual awards are associated with the institution's cost of education, total funding level was believed to misrepresent the actual burden placed upon the financial aid office, i.e., a high funding level may be the result of either many recipients and a small average per capita award or fewer recipients and larger average awards. A more effective measure would have been an unduplicated count of the number of student recipients under the four Federal aid programs. However, such unduplicated counts were unavailable on an institutional basis.

Enrollment size, either the total number of students or FTE, provided an indicator of the institution's fiscal capability (i.e., more students generates greater revenues), but was less effective as a measure of the demand for financial aid services. Financial aid participation is more closely linked with the student body's composition (e.g., income levels) than to its magnitude. However, since it was hypothesized that enrollment size was sufficiently correlated with the financial procedures used by the institution (e.g., there is an enrollment "threshold" above which procedures must become computerized) and since these data were readily available and accurate, it was decided that total enrollment would be used as a stratification variable. The variable was defined as the total of full-time and part-time enrollment categorized as follows: Small - under 1000; medium - 1000-2499; large - 2500-9,999; and very large - over 10,000. The use of this variable, however, varied by stratum.

First, as shown in Table 2.1, Proprietary schools stratified by Participation and Offering exhibited little variation in size. These schools were, by and large, small institutions. Therefore, size was not used as a stratifier for profit-making institutions.

TABLE 2.1: DISTRIBUTION OF PROPRIETARY SCHOOLS BY PARTICIPATION, OFFERING AND SIZE

Participation by Offering	Basic-Grant Only Schools				Campus-Based Schools			
Size	Cosmetology	Business	Trade/Technical	Other	Cosmetology	Business	Trade/Technical	Other
Small (under 1,000)	513	137	204	11	140	187	155	17
Medium (1,000-2,499)	3	7	5	3	1	16	18	0
Large (2,500-9,000)	0	0	3	0	2	0	2	1
Very Large (over 10,000)	0	0	0	0	0	0	1	0
Unknown*	238	46	177	4	20	29	32	3
TOTAL	754	190	389	18	163	232	208	21

*Data were not available on the size of these institutions but it was known that virtually all fell into the "small" category.

Secondly, as shown in Table 2.2, Public institutions stratified by State Effort and Level exhibited notable differences with regard to size. While universities and 4-year schools were primarily concentrated in the "large" and "very large" categories, 2-year or less schools were more evenly distributed across the four size categories. It was decided, therefore, that for the purposes of selecting schools in both categories,

TABLE 2.2: PUBLIC INSTITUTIONS BY STATE EFFORT, LEVEL AND SIZE

Level State Effort and Size	Universities and 4-Year Schools	2-Year and Less Schools
Low State Effort		
Small	11	68
Medium	23	79
Large	80	34
Very Large	34	7
Unknown Size*	5	60
Medium State Effort		
Small	21	100
Medium	58	135
Large	124	149
Very Large	66	31
Unknown Size*	4	79
High State Effort		
Small	6	32
Medium	23	44
Large	63	79
Very Large	41	53
Unknown Size*	4	59
TOTAL	563	1009

*Data were not available on the sizes of these institutions but it was known that virtually all fell into the "small" category.

size would be used as an ordering variable. That is, a random sample would be selected after ordering on the basis of size in order to ensure representation along this dimension.

Similarly, as shown in Table 2.3, Private institutions exhibited different variations with regard to size when stratified by State Effort and Level. Whereas size variation was not significant for 2-year

TABLE 2.3: PRIVATE INSTITUTION BY STATE EFFORT, LEVEL AND SIZE

State Effort and Size \ Level	Universities and 4-Year Schools	2-Year and Less Schools
Low State Effort		
Small	102	32
Medium	70	4
Large	24	0
Very Large	3	0
Unknown Size*	6	10
Medium State Effort		
Small	367	81
Medium	219	15
Large	99	2
Very Large	8	0
Unknown Size*	20	14
High State Effort		
Small	145	44
Medium	77	5
Large	36	3
Very Large	4	0
Unknown Size*	3	7
TOTAL	1185	217

*Data were not available on the sizes of these institutions but it was known that virtually all fell into the "small" category.

or less schools, it was of importance for selecting Universities and 4-year schools. Therefore, size was used as a selection criterion for 2-year or less schools but was not used to stratify Universities and 4-year schools. For the latter, however, the variation was such[33] that only two groups needed to be used: small - under 1000, and not small - over 1000.

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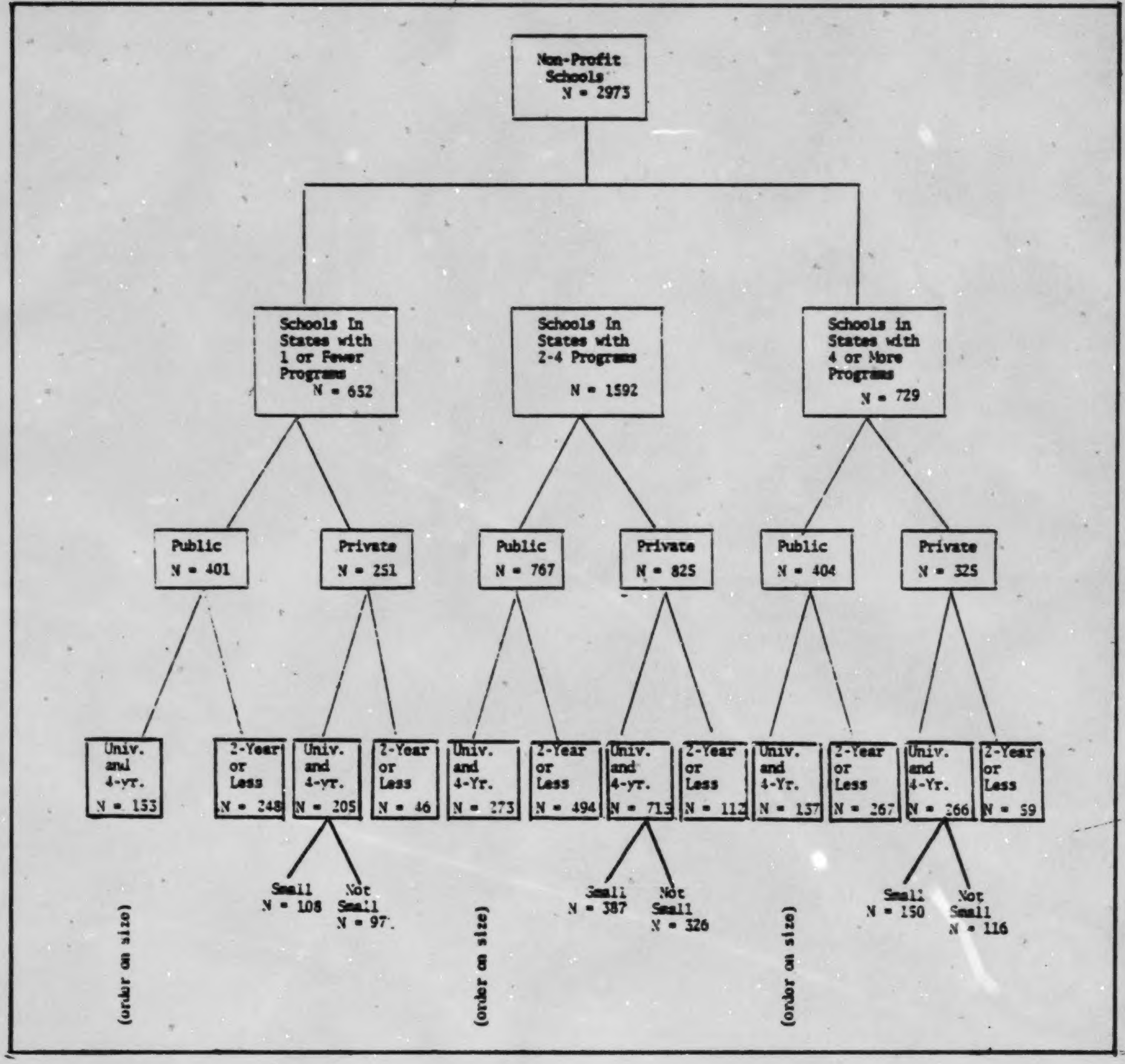
[33] When combined with Selectivity and Cost to be discussed in the following sections.

The following, then, represents the sampling frame developed for Non-Profit institutions to this point:


Non-Profit Schools N = 2973
Schools In States with 1 or Fewer Programs N = 652
Schools In States with 2-4 Programs N = 1592
Schools in States with 4 or More Programs N = 729
Public N = 401
Private N = 251
Public N = 767
Private N = 825
Public N = 404
Private N = 325
Univ. and 4-yr. N = 153
2-Year or Less N = 248
Univ. and 4-yr. N = 205
2-Year or Less N = 46
Univ. and 4-Yr. N = 273
2-Year or Less N = 494
Univ. and 4-yr. N = 713
2-Year or Less N = 112
Univ. and 4-Yr. N = 137
2-Year or Less N = 267
Univ. and 4-Yr. N = 266
2-Year or Less N = 59
Small N = 108
Not Small N = 97
Small N = 387
Not Small N = 326
Small N = 150
Not Small N = 116
(order on size)
(order on size)
(order on size)

b.7) Average Costs of Education

This measure was defined as the average annual student cost of education (i.e., total tuition and fees) using the breakdown employed by the Office of Evaluation and Dissemination in its Annual Evaluation Report: under $500; 500-999; 1,000-1,499; 1,500-1,999; 2,000-2,499; 2,500-2,999; 3,000-3,499; and over 3,499. The inclusion of this variable as a potential stratifying criterion was due to: its direct association with the level of the student aid provided; its use as a measure of the need for financial aid, i.e., the gap between financial resources and educational cost; and, its correlation with the institutional setting and the characteristics of the student population. However, as in the case of size its applicability as a stratifier varied by stratum.

First, as shown in Table 2.4, Proprietary schools exhibited little variation in size when stratified on Offering and Participation, but do vary significantly on Cost. This variation is somewhat captured by Offering but not sufficiently to ensure cost representation. Therefore, Cost was used as an ordering variable for the selection of these institutions. Secondly, as shown in Table 2.5, Public institutions exhibited little variation on the basis of Cost regardless of their Level or Size. These schools were generally low cost and rarely exceed $1,500. Therefore, for Public institutions, Cost was not used as a selection criterion. Finally, as shown in Table 2.6, Private Universities and 4-year schools (as opposed to those of 2-year or less) did vary significantly on Cost. However, the variation was such that the use of Cost as an ordering variable was sufficient to ensure representation along the dimension. Two-year institutions, on the other hand, almost totally fell into the "small" cateogry. Since little variation was observed, size was not used as a selection criterion for Private 2-year institutions.

TABLE 2.4: PROPRIETARY SCHOOLS BY OFFERING, PARTICIPATION AND COST

Participation by Offering / Cost	Campus-Based Schools				Basic-Grant Only Schools			
	Cosmetology	Business	Trade/Technical	Other	Cosmetology	Business	Trade/Technical	Other
0-$499	1	0	11	0	10	1	15	0
500-999	59	2	2	0	201	7	1	0
1,000-1,499	68	29	6	1	232	23	11	3
1,500-1,999	13	73	30	9	45	58	48	5
2,000-2,499	1	74	4	7	14	37	54	3
2,500-2,999	0	19	7	1	5	8	47	0
3,000-3,499	0	2	18	0	1	3	17	0
Over 3,499	0	3	6	0	0	1	14	1
Unknown	21	30	34	3	246	47	172	6
TOTAL*	163	232	208	21	754	190	389	18

TABLE 2.5: PUBLIC INSTITUTIONS BY LEVEL, SIZE, AND COST

Level and Size / Cost	Universities and 4-Year Schools				2-Year or Less Schools			
	Small Under 1,000	Medium 1,000 to 2,499	Large 2,500 to 9,999	Very Large Over 10,000	Small Under 1,000	Medium 1,000 to 2,499	Large 2,500 to 9,999	Very Large Over 10,000
Under $500	11	46	84	40	121	197	196	81
500-999	19	51	174	92	55	46	60	9
1,000-1,499	3	7	6	9	14	11	2	1
1,500-1,999	3	0	2	0	4	3	2	0
2,000-2,499	1	0	0	0	3	1	2	0
2,500-2,999	0	0	1	0	2	0	0	0
3,000-3,499	1	0	0	0	1	0	0	0
Over 3,499	0	0	0	0	0	0	0	0
TOTAL	38	104	267	141	200	258	262	91

TABLE 2.6: PRIVATE INSTITUTIONS BY LEVEL, SIZE AND COST

Level and Size / Cost	Universities and 4-Year Schools				2-Year or Less Schools			
	Small Under 1,000	Medium 1,000 to 2,499	Large 2,500 to 9,999	Very Large Over 10,000	Small Under 1,000	Medium 1,000 to 2,499	Large 2,500 to 9,999	Very Large Over 10,000
Under $500	7	0	2	0	2	1	2	0
500-999	21	6	2	0	22	0	1	0
1,000-1,499	108	31	10	2	46	6	0	0
1,500-1,999	141	62	15	1	39	6	2	0
2,000-2,499	133	63	23	4	28	7	0	0
2,500-2,999	81	97	43	4	7	3	0	0
3,000-3,499	40	48	25	1	9	1	0	0
Over 3,499	30	53	37	5	2	0	0	0
TOTAL	614	366	158	15	157	24	5	0

b.8) Location

This variable was defined as the ten DHEW Regions,[34] and was included to reflect differences in administrative procedures employed by the Regional Administrators for Student Financial Aid. Areas of responsibility which were within the purview of the Regional Office and which were of interest in this study included: processing institutional applications, panel reviews and appeals, program reviews and certification, providing training and technical assistance to Aid Offices, conducting audits, etc. Therefore, since regional differences impacted the nature of the program in place at the institution, this variable was thought to be necessary in any analysis of systematic differences between institutions. However, the geographic distribution of eligible institutions (shown below) was of sufficient uniformity to be captured by random selection. Therefore, this variable was planned to be used only for the purposes of post-stratification.

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[34] Region I, Boston: Region II, New York; Region III, Philadelphia; Region IV, Atlanta; Region V, Chicago; Region VI, Dallas; Region VII, Kansas City; Region VIII, Denver; Region IX, San Francisco; Region X, Seattle.

Region Number	Percent of Eligible Institutions
I	8
II	11
III	12
IV	14
V	19
VI	9
VII	8
VIII	4
IX	11
X	4

b.9) Selectivity Index

This variable was defined by Astin[35/] as an ordinal scale from 1 to 7 (0 is also used for unknowns) using the average SAT and/or ACT scores of the entering students. However, for the purposes of stratification, this variable was reclassified into two groups[36/]: Selective (the SAT/ACT scores of entering Freshman were above the median); and Not Selective (the scores were below the median). The inclusion of this variable as a possible stratifier was due primarily to its correlation with student financial need (generally higher in the selective schools) and student characteristics, particularly achievement. However, because this variable was also correlated with other key stratifiers (i.e., level, control and size) it was considered unnecessary to ensure the inclusion of postsecondary institutions along this dimension for all but Private Universities and 4-year schools. It was only for this stratum that the other stratifiers did not capture variation with respect to Selectivity. The distribution of such schools along this variable is given in Table 2.7, and

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[35/] Astin, A.W. Predicting Academic Performance in College, The Free Press, New York, 1971.

[36/] See National Center for Education Statistics, Transfer Students in Institutions of Higher Education, Washington, D.C., 1977, p. 17.

TABLE 2.7: PRIVATE UNIVERSITIES AND 4-YEAR SCHOOLS BY STATE EFFORT, SIZE, COST AND SELECTIVITY

	NON-SELECTIVE			SELECTIVE		
	Low State Effort	Medium State Effort	High State Effort	Low State Effort	Medium State Effort	High State Effort
Unknown Size and Cost	5	67	7	1	3	2
Small						
0-499	3	2	1	0	1	0
500-999	7	7	6	0	0	1
1,000-1,499	25	61	19	2	0	1
1,500-1,999	19	74	35	5	7	1
2,000-2,499	13	47	22	11	29	12
2,500-2,999	8	35	10	4	20	9
3,000-3,499	1	8	6	1	15	9
Over 3,500	2	3	2	1	14	8
Medium						
0-499	0	0	0	0	0	0
500-999	1	7	0	1	1	0
1,000-1,499	15	10	4	2	0	0
1,500-1,999	20	25	7	2	6	2
2,000-2,499	6	15	9	5	24	4
2,500-2,999	1	21	5	4	49	17
3,000-3,499	1	4	0	8	27	9
Over 3,500	0	1	4	4	29	15
Large						
0-499	1	1	0	0	0	0
500-999	0	2	0	0	0	0
1,000-1,499	4	3	0	1	2	0
1,500-1,999	4	7	2	2	0	0
2,000-2,499	0	4	1	3	14	1
2,500-2,999	0	10	4	2	19	8
3,000-3,499	0	1	0	2	17	5
Over 3,500	1	1	0	4	17	14
Very Large						
0-499	0	0	0	0	0	0
500-999	0	0	0	0	0	0
1,000-1,499	2	0	0	0	0	0
1,500-1,999	0	0	0	1	0	0
2,000-2,499	0	2	0	0	0	1
2,500-2,999	0	2	0	0	0	1
3,000-3,499	0	0	0	0	1	0
Over 3,500	0	1	0	0	2	2
TOTALS						
Unknown	5	67	7	1	3	2
Small	78	237	100	24	36	41
Medium	44	79	29	26	135	47
Large	10	29	7	14	69	23
Very Large	2	5	0	1	3	4
GRAND TOTAL	139	417	144	66	296	122

the resulting sampling frame is provided in Exhibit 2.3. This represents the final sampling framework which was used for the site visit survey. The stratification of institutions, then, involved the use of the following variables:

- Level - Universities and 4-year schools, 2-year or less schools;
- Control - Public, Private Non-Profit, Proprietary;
- Size - categories of total full-time and part-time enrollment;
- Participation - BEOG-only; BEOG and Campus-Based;
- Selectivity - Selective, Not Selective;
- Cost - categories of total tuition and fees.

It is believed that these defined subclasses which were both relevant from an analytical perspective and homogenous (i.e., minimum variance) with respect to the parameters of interest.

c) Selection of Students/Student Aid Records

Unlike the simpler case of the postsecondary institutions, the analytical domains of students and student aid records did not represent independent strata from which individual samples could be drawn. That is, besides stratifying students by their year in school there was very little that could be done to ensure an appropriate distribution of students among the subgroups of interest due to the generally limited nature of institutional data. We were forced, therefore, to depend entirely upon the random sample sizes provided by the selection process since the analytical domains (e.g., parental/student income level) cut across clusters (i.e., schools). In such cases, the problem becomes one of choosing the size of the sample necessary to ensure the inclusion of the desired subclasses and how to allocate this sample to the cluster strata in a manner which approaches optimal. As noted by Kish:

EXHIBIT 2.3: FINAL SAMPLING FRAMEWORK FOR INSTITUTIONS

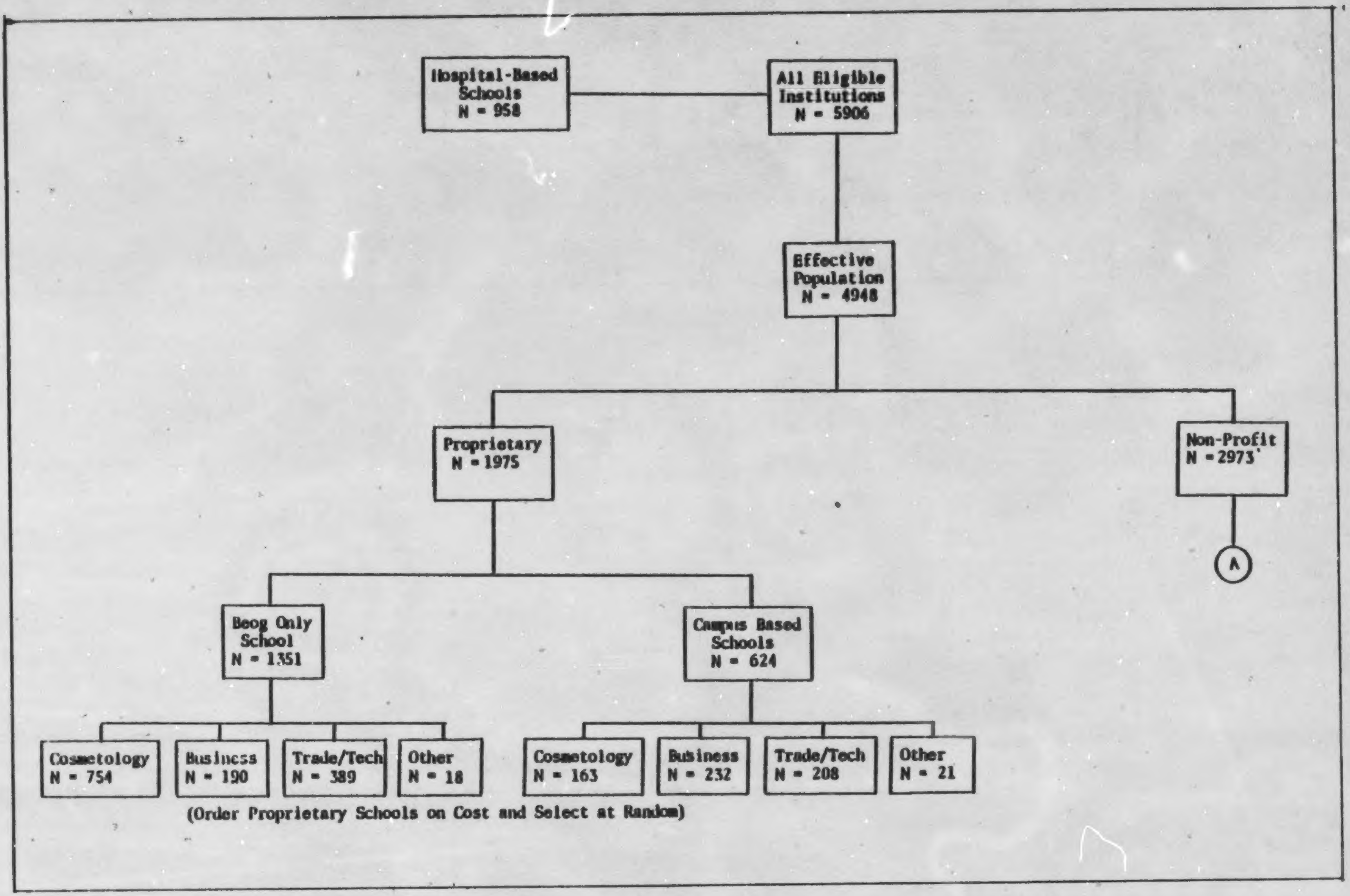
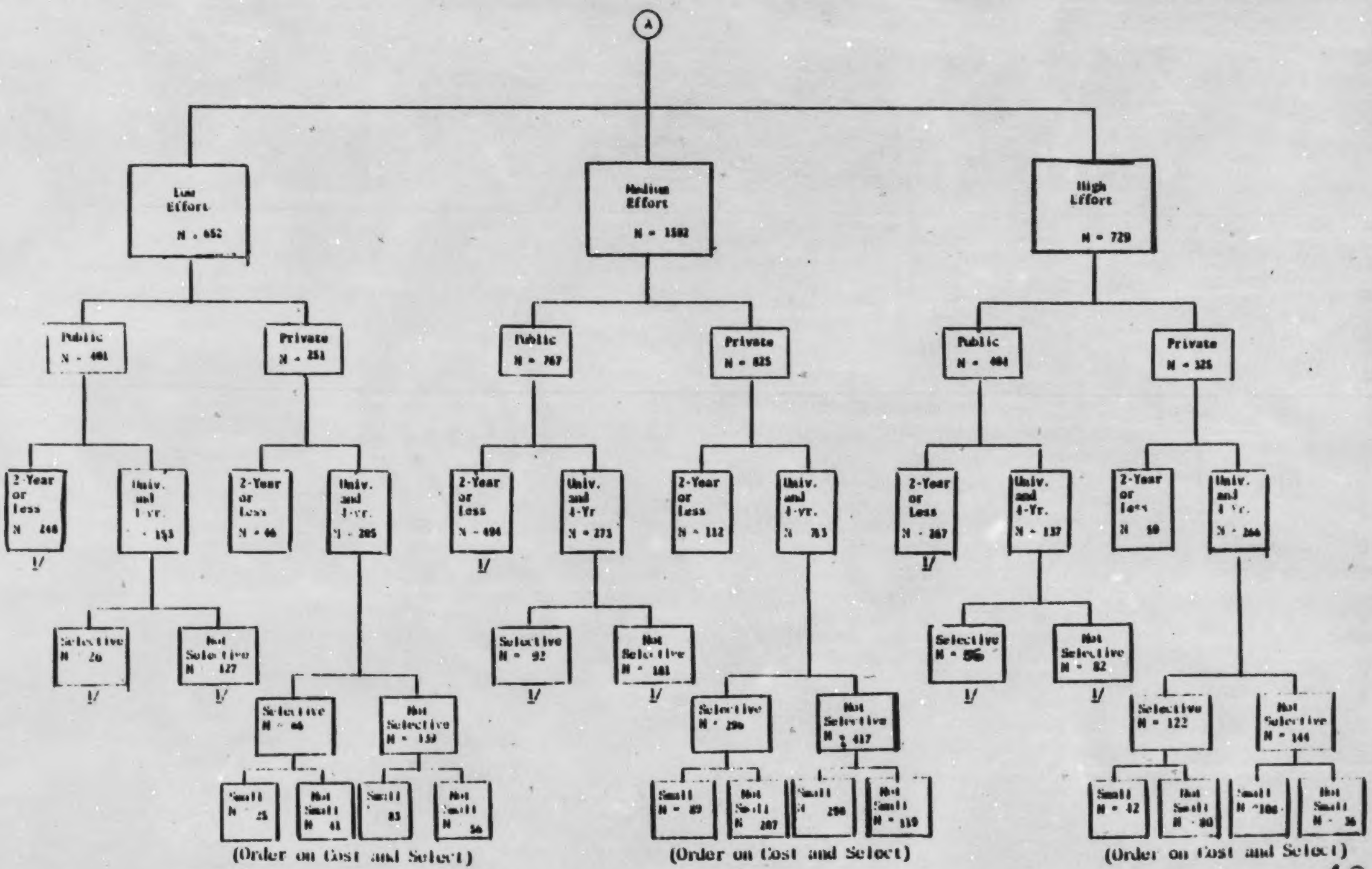

Hospital-Based Schools N = 958
All Eligible Institutions N = 5906
Effective Population N = 4948
Proprietary N = 1975
Non-Profit N = 2973
A
Beog Only School N = 1351
Campus Based Schools N = 624
Cosmetology N = 754
Business N = 190
Trade/Tech N = 389
Other N = 18
Cosmetology N = 163
Business N = 232
Trade/Tech N = 208
Other N = 21
(Order Proprietary Schools on Cost and Select at Random)

EXHIBIT 2.3: FINAL SAMPLING FRAMEWORK FOR INSTITUTIONS (Continued)


A
Low Effort N = 652
Public N = 401
Private N = 251
2-Year or Less N 248
1/
Univ. and 4-yr. 153
Selective N 26
1/
Not Selective N 127
1/
2-Year or Less N = 46
Univ. and 4-yr. N = 205
Selective N = 66
Not Selective N = 139
Small N 25
Not Small N 41
Small 83
Not Small N 56
(Order on Cost and Select)
Medium Effort N = 1592
Public N = 767
Private N = 825
2-Year or Less N = 494
1/
Univ. and 4-Yr N = 273
Selective N = 92
1/
Not Selective N = 181
1/
2-Year or Less N = 112
Univ. and 4-yr. N 713
Selective N = 296
Not Selective N = 417
Small N = 89
Not Small N 207
Small N 298
Not Small N = 119
(Order on Cost and Select)
High Effort N = 729
Public N = 404
Private N = 325
2-Year or Less N = 267
1/
Univ. and 4-Yr. N = 137
Selective N = 56
1/
Not Selective N = 82
1/
2-Year or less N 59
Univ. and 4-Yr. N = 266
Selective N = 122
Not Selective N = 144
Small N = 42
Not Small N = 80
Small N = 108
Not Small N = 36
(Order on Cost and Select)

1/ Order on Size and Select

> Selecting groups with PPS (probabilities proportional to size) is particularly well suited to studies in which both individuals and the groups to which they belong are used as units in separate analyses.[37]

However, the problem of selecting a student sample was exacerbated by the need to: (1) estimate institutional characteristics from the student sample (i.e., participation rates by income level); and (2) ensure the inclusion of students from each academic class. Accordingly, the strategy employed consisted of:

1. selecting a sample from each institution such that school-specific estimates could be made of student participation rates; and
2. stratifying students, prior to their selection, according to their academic status (e.g., first-year students) and selecting a random sample from each stratum proportional to each group's representation in the institution's total student population.

This approach, however, did reduce the efficiency of the resulting sampling framework.

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[37] Kish, Leslie. Survey Sampling, John Wiley and Sons, New York, 1965.

2.5: The Power of the Statistical Test - A Method for the Calculation of Sample Sizes

As previously discussed, the primary emphasis of this study was on the examination of systematic differences between and among institutions and students. Therefore, the design of this survey concentrated on ensuring that a sufficient number of observations were available for analysis. In this manner, the extent to which such differences existed could be confirmed statistically. The approach which was adopted was to maximize the gains in the areas which were of major importance for the formulation of Federal policy. Before proceeding, however, it should be noted that this selected strategy resulted in a trade-off between the descriptive and evaluative aspects of this study. By optimizing the design for the comparative analyses a certain degree of efficiency was lost in the development of population estimates of totals

Specifically, the focus was on the statistical "power" of the proposed analytical techniques. That is, given some specified level of significance and the size of the effect to be detected, the goal was to minimize the probability of accepting the null hypothesis given that it was false (Type II error). Although the following discussion is not intended to be exhaustive, the procedures discussed are sufficiently complete to indicate the "worst case" situations which were expected to be encountered in this study and which were used to derive the survey sample sizes.

In the majority of educational evaluations, the important consideration is the presence and size of an effect or outcome due to a particular treatment or intervention. The treatment can be an institutional operating procedure, participation in a categorical outreach program, or receipt of funds or services. The effect can be lower loan-work burdens, an increase in the retention rate of students, or lower program operating costs.

Frequently, the effects of treatments or interventions are quite small and difficult to detect. This does not mean, necessarily, that such effects are trivial. The reduction of educational costs by $25 per year for two million students would mean a savings of $50 million. Such a small amount per student, however, may not be easily identifiable using a small sample of students in the conduct of an evaluation. Sufficient numbers of students must be sampled to ensure the detection of effects of such limited size.

The assessment of treatment effects has been traditionally conducted through the application of statistical tests of significance. These tests have been used to ensure the statistical soundness of inferences and to assist in the making of decisions regarding programs or their components. The process of conducting statistical tests of significance is well known, and will not be addressed here. What is often ignored in statistical tests of significance is the "power" of the test. The power of a statistical test is the probability that it will lead to the rejection of the null hypothesis.[38/] While it is almost universally accepted by educational researchers that the power of a statistical test is important and that it should be substantial, few investigators take the time to calculate and report it.[39/]

Tversky and Kahnman[40/] give three reasons why the computation of power is important:

- such computations can lead the investigator to the conclusion that there is no point in running the study unless the sample size is materially increased;
- the computation is essential to the interpretation of negative results, i.e., failures to reject the null hypothesis; and
- computing power gives the investigator an indication of the level of the probability of a valid rejection of the null hypothesis.

The power of statistical tests depends on three parameters: the significance level, the size of the sample, and the "effect size," that is, the differences which can be attributed to particular interventions.[41/]

[38/] Cohen, J. Statistical Power Analysis for the Behavioral Sciences, New York: Academic Press, 1969.

[39/] Brewer, J.K. "On the Power of Statistical Tests in the American Educational Research Journal," American Educational Research Journal, Vol. IX, No. 3, 1972, pp. 391-401.

[40/] Tversky, A. and Kahnman, D., "Belief in the Law of Small Numbers," Psychological Bulletin, Vol. 76, 1971, pp. 105-110.

[41/] Cohen, J. Power Analysis for the Behavioral Sciences, New York: Academic Press, 1969.

The significance level is generally referred to as "α" and represents the rejection area of the null hypothesis. It is usually set at .05 or .01 more as a matter of convention than anything else. In some evaluation studies, it may be more important, or necessary, to increase the size of α to detect small-size effects. In general, it is accepted that the ratio between α and β, the probability of accepting the null hypothesis when it is false (Type II error) should be about 1:4 (i.e., for $\alpha = .05$, $\beta = .20$), resulting in a power $(1-\beta)$ of .80.

The reliability (or precision) of a sample value is always dependent on the size of the sample, although it may, or may not, also be dependent on the unit of measurement, the population value, and the shape of the population distribution. The larger the sample size, other things being equal, the smaller the error and the greater the reliability or precision of the results. Further, the greater the precision of the sample results, other things being equal, the greater the probability of detecting differences or treatment effects. Thus, increases in sample size raise the statistical power of the test being used.

The effect size (ES) is perhaps one of the more difficult components of power analysis. In evaluative studies, merely stating that there is a significant difference between two populations is not sufficient. Some amount of effect must be specified for the test results to be meaningful and useful. Cohen suggests as a convention, the use of "small, medium, and large" as adjectives for (ES) values.[42] Further, the ES values are given in standardized units to facilitate the interpretation of results. Conventional definitions of ES for the t-test for means are as follows:

small: $d = .20$
medium: $d = .50$
large: $d = .80$

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[42] Cohen, Op. Cit., pp. 22-26.

Definitions of ES for other procedures are given below in the discussion of the specific tests to be conducted.

It is possible to attain the desired levels of power by manipulating the α level, the ES, or the sample size. If cost is not a major issue, the sample size can be increased. Should this not be possible, a larger ES and/or α can be selected. For the majority of tests conducted, the former alternative is the more desirable.

The sample size required to provide a power of 0.80, given some level of α and ES, differs depending on the statistical test conducted. In the sections which follow, the sample sizes needed to meet specified α, ES, and $1-\beta$ criteria are presented.

a) Contingency Tests

Because the bulk of the data to be collected was to be categorical, much of the analysis was expected to employ contingency tests. The relevant statistic is Chi-square and, in this case, would be used to test for "independence" among variables. Contingency tests can also be viewed as tests of equality of two or more distributions over a set of two or more categories (i.e., a multinominal distribution).

In the analysis of contingency tables, the null hypothesis typically tested is that of no association. The most widely used measure of association in contingency tables is C, Pearson's coefficient of contingency. The effect size (ES) index, e, measures the discrepancy between paired proportions over the cells in the following way:

$$e = \sum_{i=1}^{m} \frac{(P_{1i} - P_{0i})^2}{P_{0i}}$$

where: P_{0i} = the proportion in cell i posited by the null hypothesis,

P_{1i} = the proportion in cell i is posited by the alternative hypothesis and reflects the effect for that cell, and

m = the number of cells.

Cohen suggests the following ES values for contingency tables:

Small effect size: $e = .05$
Medium effect size: $e = .10$
Large effect size: $e = .20$

For example, sample sizes required to meet these ES criteria, at $\alpha = .01$; $\alpha = .05$; $\alpha = .10$ and 24 degrees of freedom are given in Exhibit 2.4.[43]

EXHIBIT 2.4: SAMPLE SIZES REQUIRED FOR CHI-SQUARE TESTS

	$1-\beta = .80$; df = 24		
	α		
e	.01	.05	.10
	n*	n*	n*
.05	602	450	374
.10	301	225	187
.20	151	112	94

*The n's represent the total sample size required.

b) The t-Test for Means

In the analysis of the data to be collected for this study, it was expected that means of groups would be compared. Since it was not known at the time the sample was designed which treatments would result in higher values on outcome variables, non-directional tests were planned. These require larger sample sizes than one-tailed tests and thus represented the "worst-case" situations in conducting t-tests of means. Conventional definitions of ES are given as:[44]

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[43] Adapted from J. Cohen, Statistical Power Analysis for the Behavioral Sciences, New York, Academic Press, 1969.

[44] Cohen, J., Ibid., p. 38.

Small: $d = .20$
Medium: $d = .50$
Large: $d = .80$

where: $d = \frac{X_1 - X_2}{\sigma}$.

The sample sizes required to detect these differences at the three α levels are given in Exhibit 2.5.

EXHIBIT 2.5: SAMPLE SIZES REQUIRED FOR t-TESTS OF MEANS

	$1-\beta = .80$ α (non-directional)		
d	.01	.05	.10
	n*	n*	n*
.20	586	393	310
.50	95	64	50
.80	38	26	20

*n required for each group.

c) Tests for Differences Between Proportions

Again, as a result of the large volume of categorical data to be collected, it was expected that it would also be necessary to make comparisons among groups in terms of proportions. A proportion is a special case of the arithmetic mean, one in which the measurement scale has only two possible values, presence or absence of a characteristic. The detectability of a difference between two proportions is not a simple function of the difference. Differences at the ends of distributions are more easily detected than those of equal magnitudes in the middle. A transformation is required to solve this problem as follows:

$$\phi = 2 \arcsin \sqrt{P}$$

Equal differences between ϕ's are equally detectable.[45] The ES index for difference in proportions can now be defined as:

$$h = \phi_1 - \phi_2 \text{ (directional)}$$

$$= |\phi_1 - \phi_2| \text{ (nondirectional)}$$

Small effect size: $h = .20$
Medium effect size: $h = .50$
Large effect size: $h = .80$

The sample sizes needed to detect the differences between proportions (via the Arcsin Transformation) are given in Exhibit 2.6.

EXHIBIT 2.6: SAMPLE SIZES REQUIRED FOR TESTING HYPOTHESES CONCERNING DIFFERENCES BETWEEN PROPORTIONS

	$1-\beta = .80$		
	α (nondirectional)		
h	.01	.05	.10
	n*	n*	n*
.20	584	392	309
.50	93	63	49
.80	36	25	19

*n's required in each sample.

d) Differences between Correlation Coefficients

Of particular interest in this study were the degrees of relationships which exist between specific variables in given populations and if these relationships differ among the groups of interest. As in the case of differences between proportions, the detectability of a difference in magnitude between correlations is not a simple function of the difference. A Fisher z transformation provides a solution to the problem, where r's are transformed by the relationship.

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[45] Cohen, Op. Cit., p. 176.

$$z = 1/2 \log_e \frac{1+r}{1-r}$$

and the ES index is defined as

$$\begin{aligned} q &= z_1 - z_2 \quad \text{(directional)} \\ &= |z_1 - z_2| \quad \text{(nondirectional)} \end{aligned}$$

The conventional ES values are defined as

Small effect size:	$q = .10$
Medium effect size:	$q = .30$
Large effect size:	$q = .50$

Sample sizes required to test differences between correlation coefficients are given in Exhibit 2.7.

EXHIBIT 2.7: SAMPLE SIZES REQUIRED TO DETECT DIFFERENCES BETWEEN CORRELATION COEFFICIENTS

	$1-\beta = .80$		
	α (nondirectional)		
q	.01	.05	.10
	n*	n*	n*
.10	2339	1573	1240
.30	263	177	140
.50	96	66	52

*n required in each sample.

e) Analysis of Variance

Analysis of variance was also expected to be conducted to test for differences between group means and interactions. The relevant statistic is the F ratio and the ES index is f, the standard deviation of the standardized population means.[46] The conventional ES values are given as:

Small effect size: $f = .10$
Medium effect size: $f = .25$
Large effect size: $f = .40$

The sample sizes required to detect f by the F test are given in Exhibit 2.8.

EXHIBIT 2.8: SAMPLE SIZES REQUIRED TO DETECT DIFFERENCES USING ANALYSIS OF VARIANCE

	$1-\beta = .80$		
	α		
f	.01	.05	.10
	n*	n*	n*
.10	586	393	310
.25	95	64	50
.40	38	26	20

n* required for each group

The figures shown above represent the "worst case" situation in the analysis of variance. In addition, the sample sizes shown above were also applied to approximate the sample sizes required for analyses using the linear logistic model or, briefly, the log-linear model. While the relationship between ANOVA and the log-linear model is not perfect, it was believed that they are sufficiently similar to warrant this application.

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[46] Cohen, Op. Cit., p. 269.

f) Multiple Regression Analysis

In those situations where the number of independent variables is large, multiple regression analyses was expected to be appropriate, given that these variables can be quantified (including dummy coding). The statistic of insterest in the Multiple R^2, the proportion of the dependent variable's variance shared with optimally weighted independent variables.

For the F test of significance of R^2, ES values are designated as f^2 and given by:

$$f^2 = \frac{R^2}{1-R^2}$$

The conventional ES values for R^2 are given as follows:

Small effect size:	$f^2 = .02$
Medium effect size:	$f^2 = .15$
Large effect size:	$f^2 = .35$[47]

The sample sizes required for multiple regression analysis are given in Exhibit 2.9.

EXHIBIT 2.9: SAMPLE SIZES REQUIRED FOR MULTIPLE REGRESSION ANALYSIS

	$1-\beta = .80$ k = 20 variables in equation	
	α	
f^2	.01	.05
	n*	n*
.02	1429	1069
.15	209	161
.35	104	81

*n represents the total sample size.

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[47] Cohen, J. and Cohen, P. Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences, Hillsdale, N.J.: Lawrence Erlbaum Associates, 1975.

g) Implications for the Survey Design

Summarizing the previous discussion, it can be seen that if we had required an α level of .05 and a power (1-β) of .80 the following sample sizes would have been required to detect various effects:

	Sample Size/ Group for t-tests, ANOVA, and Log-Linear Models	Sample Size for Regression Total	Sample Size/ Group for Correlation Coefficients
small effect	392	1069	1573
medium effect	63	161	177
large effect	25	81	66

Similarly, for the same power criterion and an α level of .10 the following sample sizes would be required:

	Sample Size/ Group for t-tests, ANOVA, and Log-Linear Models	Sample Size for Regression Total	Sample Size/ Group for Correlation Coefficients
small effect	310	619	1240
medium effect	50	101	140
large effect	20	52	52

That is, in order to analyze differences between institutions (using t-tests, chi-squares, ANOVA, or log-linear models) which were within the medium effect range, an optimal sample size of approximately 63 observations per group would be required.[48/] If the typical analysis included the comparison of some operating procedure which was defined at say 4 levels, across 10 institutional subgroups (e.g., level by control) then a total sample of approximately 2,500 schools would be required. Similarly, if we were to examine some student characteristic (e.g., loan-work burden) across types of institutions (again level by control, or 9 categories) and 10 income categories, a sample of

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[48/] Using α = .05 and (1-β) = .80.

approximately 5800 students would be required. In both cases, the specified sample would be sufficient for the use of multiple regression to examine "small effects" and is only sufficient for a "large effect" using a correlation coefficient.

In both cases, changing any of the selected parameters affects the size of the required sample. For example, using the previous situations changing the significance level (α) from .05 to .10 alters the required samples to 1800 schools and 4500 students. Clearly, an endless number of combinations of types of analyses, effect sizes, α and β could be specified, each requiring a different sample size. The problem, then, was to select a sample size which optimized most of the proposed analyses within the constraints of the available resources. The results are presented in the following section.

2.6: Determination of Required Sample Sizes for Institutions and Students

As indicated in the first section of this chapter, the design of this research study entailed the use of two separate but interrelated surveys:

- Phase I - During this phase, data were collected through personal interviews at a small sample of institutions. These data concentrated on descriptions of the populations of institutions, on "gross level" comparisons between types of institutions, on the resolution of the student-specific related issues and on the design of an efficient large-scale institutional survey.
- Phase II - During this phase, a mail survey is currently being conducted of a large sample of postsecondary institutions These data will focus on the institutional evaluative issues and on the student.institution interrelationships using aggregate student data.

The use of this approach not only minimized the overall cost of the study but also separated the institutional evaluative issues from those which were purely descriptive. As a result, each survey could be designed to optimize a reduced set of objectives. The remaining discussion addresses only Phase I of the proposed data collection effort. Phase II will be addressed in a subsequent report to be submitted approximately January, 1980.

The calculation of the required sample of postsecondary institutions and students for the site visit survey was based, as previously discussed, upon two related objectives:

- to provide adequate power for the analysis of the relationship between institutional practices and student outcomes within categories of institutions at a "gross level" of comparison, e.g., by three categories of control; and
- to provide an adequate representation of types of postsecondary students and to also allow for the estimation of various population parameters.

Therefore, it had to be shown that the sample sizes selected were capable of satisfying both descriptive and evaluative outcomes.

With regard to the former, optimum sample sizes (i.e., those that provided minimum variance of the estimates within the constraint of a fixed budget) were derived for the chosen stratified cluster design using the method of Hansen, Hurwitz and Madow.[49] These were 128 postsecondary institutions and ten students/records per school to provide population estimates for both students and institutions which did not exceed a relative precision of approximately ± 10 percent. Next, the same sample sizes were calculated (as discussed in the previous section) to meet the evaluative objectives. Employing a significance level of 0.10, a power of 0.80, and the requirement of a medium effect (i.e., for a t-test of differences between means, an effect of 0.5 standard deviations), it was determined that 150 schools and 125 students per school were required. The result, therefore, was a difference in the specified sample sizes.

To resolve the inconsistency, involved invoking the objective of emphasizing the evaluative side of the study (see Section 2.2). That is, when faced with the need to tradeoff between descriptive and evaluative outcomes, the latter was to be dominant. Therefore, the choice was made to choose a sample of 150 institutions and 125 students per school. In this manner, the analytical objectives could be met while improving the descriptive results (i.e., the increase in the sample sizes worked to reduce the error in the descriptive estimates).

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[49] See Hansen, M.H., W.N. Hurwitz and W.G. Madow. Sample Survey Method and Theory: Volume I, John Wiley and Sons, 1953, Chapter 7, particularly pp. 329-331.

Once the strate were formed, the original desired sample of 150 institutions was allocated to each group in proportion to the number in the population falling in each stratum, except that the initial division between profit-making and non-profit schools was adjusted in the direction of the non-profit institutions. This was necessary because although the profit-making schools accounted for about 40 percent of the schools, they only accounted for a small proportion of the students. At this point, the Office of Management and Budget (OMB) requested that the sample of four-year public institutions be increased by 25 schools. These extra schools were also allocated proportionally to each of the public institution strata, thereby increasing the total sample to 175 postsecondary institutions. The actual selection of the sample of schools to participate in the survey was conducted randomly within each of the 32 groups.

Within each of the selected schools, a random sample of students was selected by the individual local site Coordinators using detailed procedures developed by Applied Management Sciences (see Appendix A). Basically, the schools were requested to: 1) compute a sampling ratio by dividing the total enrollment by the required sample size; 2) obtain a listing of all undergraduate students registered at least half-time (i.e., eligible for Federal student aid); 3) stratify them by class level if at least a two-year school; and 4) use the sampling ratio to systematically select a random sample of students. In most cases, these procedures required only minimal adjustments to fit individual situations. A small number of schools (approximately eight institutions) were unable to stratify their students by class prior to selection. This was due mainly to the combination of a lack of a data processing capability and an enrollment size too large to be handled manually. In these cases, the selection was made by the schools randomly without prior stratification.

3

SURVEY OPERATIONS

3.1: Selection and Training of Field Teams

Due to the large amount of data to be collected, a two day visit by a team of trained interviewers was required to each institution. The site visit teams each consisted of two members: a Senior Interviewer who was responsible for administering the institutional interview schedule[1] with the appropriate school representatives, including the Financial Aid Officer, the Chief Fiscal Officer, and the Loan Officer; and a second or Junior Interviewer who was to administer the student questionnaires and who was charged with transcribing data from students' financial aid records onto the Record Review Forms. In the final weeks of the field work, some teams were expanded to three persons to cover the larger or more complex schools, while one Senior Interviewer successfully conducted three site visits working entirely on his own.

In order to successfully complete these tasks, each interviewer had to possess specific capabilities and skills. These included a background in student financial aid, knowledge of education administration at the postsecondary level, and field data collection experience at educational institutions. Moreover, at least one interviewer proficient in Spanish was needed to facilitate the research in predominantly Hispanic schools.

On the advice of the Project Officer, several individuals were contacted as sources who might identify those with experience as financial aid officers who could work as field staff. Among those contacted were Mr. Richard Biehl, Director of Information and Publications for the National Association of College and University Business Officers (NACUBO); Mr. Peter Hunt of the Higher Education Administration Referral Service; and Dr. James Kaufman of the National Student Personnel Association. Advertisements were also placed in the Washington Post, the New York Times, the Chicago Tribune, and the Los Angeles Times to locate interviewers from those areas who could visit schools in their region, thereby improving the cost-effectiveness of travel swings. Hundreds of resumes were submitted in response to the advertisements. Upon reviewing the resumes for relevant experience, interviews were conducted with 34 applicants whose backgrounds were most closely aligned with the needs of the study. Following these interviews, the applicants were again evaluated and a total of 14 were hired. Applied Management Sciences staff members were utilized to complete the group of interviewers. Additional outside staff were later hired as "clean-up" teams, to conduct return visits to some schools where all of the work (in particular, abstraction of student records) could not be completed during the basic two-day visit. In all, 27 persons (including Applied Management Sciences staff) were trained for field work on this project. Of those, one was terminated by Applied Management Sciences before actual field work began, and another was relieved of duties mid-way through the field work. The other personnel proved to be extremely capable and resourceful, and many of the visited schools complimented the performance of the teams in subsequent communications with the contractor, USOE, and the National Association of Student Financial Aid Administrators.

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[1] Copies of all data collection instruments can be found in the Site Visit Report, Applied Management Sciences, Inc., June 30. 1979.

To structure and control the work of the interviewers, Applied Management Sciences developed an Interviewer's Training Manual to ensure that the interviews would proceed smoothly and yield complete and accurate information. The manual addressed each of the following areas:

- background and purpose of the study;
- overview of Federally-funded student financial assistance programs;
- general interview instructions;

- detailed on-site instructions; and
- indepth question-by-question instructions for the proper use of the survey instruments.

Copies of the manual were sent to the interviewers in advance of formal training, and immediately before the start of data collection activities, all interviewers attended a seven-day training session in Washington on the conduct of the survey and the use of the instruments. The focus of this training was on student financial aid management activities; financial aid office administration; general survey procedures; detailed on-site procedures; and detailed instructions for administering each of the questionnaires. A copy of the training agenda is provided in Exhibit 3.1 on the following pages.

Finally, actual site visits were conducted at three schools as part of the training. This provided each interviewer with a clearer picture of how their work would proceed, and helped them to anticipate and resolve potential problems they might encounter at the remaining schools. Immediately following this training, site visits were begun to the remaining 169 institutions[2] by eight teams of interviewers, beginning January 22, 1979.

3.2: Obtaining the Cooperation of Institutions

A host of activities were undertaken prior to the conduct of the site visits in order to facilitate cooperation with the survey. The first step taken to ensure the cooperation of the schools and enhance their chances of participation involved contacting several education associations to obtain their support for the study. These included the National Association of Trade and Technical Schools (NATTS), the Association of Independent Colleges and Schools (AICS), the American Council on Education (ACE), and the National Association of Student Financial Aid Administrators (NASFAA). A description of the study was

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[2] Due to the requirements imposed by OMB during the clearance process, 25 schools were to be added to the original sample of 150 institutions. However, due to the lateness of this change only 22 could actually be added, despite repeated attempts to find replacements.

EXHIBIT 3.1: INTERVIEWER TRAINING AGENDA

Thursday, January 11, 1979

9:00 - 9:15 a.m.	Introduction
9:15 - 12:00 noon	Study Overview • Background and Scope of the Study • Major Objectives • Discussion of the Campus-Based and Basic Grant Programs
12:00 - 1:30 p.m.	Lunch
1:30 - 5:00 p.m.	Discussion of Student Financial Aid Management Activities • Institutional Eligibility and Application for Aid -- eligibility -- tripartite application • Allocation of Aid to Institutions -- timing of award announcements -- substitution of Federal for institutional aid • Information Distribution and Student Counseling -- training of student financial aid counselors and the quality of such training -- activities undertaken to provide student counseling services • Institutional Accountability -- compliance with regulations -- institutional procedures for record keeping -- program monitoring -- loan management -- reporting
5:00 p.m.	Adjourn for the day.

EXHIBIT 3.1 (Continued)

Friday, January 12, 1979

9:00 - 12:00 noon	Discussion of Student Financial Aid Management Activities (continued) ● Allocation of Aid to Students -- needs analysis systems -- calculation of student budgets -- aid packaging -- validation of data reported by students on BEOG applications -- procedures used to allocate aid to students (the notification and delivery of aid; the repackaging of aid; and the recovery of aid)
12:00 - 1:30 p.m.	Lunch
1:30 - 2:00 p.m.	Financial Aid Office Administration, Staffing, and Organizational Structure
2:00 - 2:30 p.m.	Question and Answer Period
2:30 - 2:45 p.m.	Coffee Break
2:45 - 3:45 p.m.	General Survey Procedures
3:45 - 5:00 p.m.	Detailed On-site Procedures; AMS Travel Policy
5:00 p.m.	Adjourn for the day.

Monday, January 15, 1979

9:00 - 12:00 noon	Detailed Instructions for Student Questionnaire and Record Review Form
12:00 - 1:30 p.m.	Lunch
1:30 - 5:00 p.m.	Student Questionnaire and Record Review Form Instructions (continued)
5:00 p.m.	Adjourn for the day.

EXHIBIT 3.1 (Continued)

Tuesday, January 16, 1979

9:00 - 12:00 noon	Detailed Instructions for Institution Questionnaire (Part I)
12:00 - 1:30 p.m.	Lunch
1:30 - 5:00 p.m.	Detailed Instructions for Institution Questionnaire (Part II)
5:00 p.m.	Adjourn for the day.

Wednesday, January 17, 1979

ALL DAY	Site Training in Field

Thursday, January 18, 1979

ALL DAY	Site Training in Field

Friday, January 19, 1979

ALL DAY	Review of Travel Swings and Site Packages Distribution of Tickets and Site Visit Materials

prepared for publication in each of their newsletters and the associations also agreed to handle phone calls from member schools which were unsure about participation. The American Council on Education also provided special support by sending letters to the President of every sampled school to urge their cooperation.

The initial contact with the schools in the sample, however, was a letter signed by John Evans, Deputy Commissioner of Education. Copies were sent to the President and the Director of Financial Aid at each institution, along with a description of the survey. These letters explained the purpose of the site visits, informed the schools of the length of time required for the interviews, and asked for their cooperation. Concurrent with these institutional contacts, the USOE Regional Offices were notified that schools had been selected from their particular region and were asked to facilitate the site visit process by responding to calls for schools.

After the letters were mailed, initial telephone contacts were made with each school. These calls centered on:

- ascertaining the willingness of the institutions to participate;
- identifying an on-site Coordinator for the project, preferably a member of the financial aid office staff;
- indicating that a two-person team would pay a two-day visit to the school between January and April; and
- obtaining information on factors that could affect the conduct of the site visits, such as
    - vacation periods and other school closings,
    - the number of enrolled undergraduates attending half-time or more (needed in order to derive student sample sizes),
    - the proportion of these undergraduates receiving financial aid, which would also affect sampling, and
    - whether a school had branch campuses, eligible evening students, separate (remote) administrative offices, or other complications.

A total of 207 institutions were contacted in these preliminary calls. Thirty-five schools did not participate; the reasons for nonparticipation were diverse, and included:

- Eight institutions felt they had reached a limit in the time they could devote to external audits, program reviews, surveys, and so on. At least two of these were major private universities which exhibited little interest in the project; in addition, complications were encountered at one of these two institutions because of internal requirements for faculty approval of any participation in outside research programs. Another of these institutions gave repeated assurances of interest, switched dates, and then took a firm negative stance. One school clearly did not want to participate in any local review of its operation. Other schools in this group appeared to have quite legitimate problems with multiple audits, program reviews scheduled for the same time period as the site work, and so on; in those cases their requests not to participate were accepted without debate.

- Three schools, all contacted late in the study as part of the government's request to increase the number of four-year public schools in the sample, refused on the grounds that the request simply came too late, and at a bad time of year, so that the school would have to expend very substantial efforts to prepare for the site visit. All three had reasonable objections and were not pressed further.
- Three schools asked not to participate for reasons essentially related to staff turnover: the Financial Aid Officer had just resigned, or was brand new. Other schools with recent staff turnover were willing to participate, however, so the project was still able to include schools where financial assistance staffing was inexperienced or nonexistent.
- Four more schools dropped out after citing problems coping with the general burdens of the project. Two of these were very small proprietary schools with no designated Financial Aid Officer (similar schools did agree to participate, so such institutions are still included in the study). Another was a large, multi-campus university with decentralized records and several separate locations for financial aid work so that not all parties could be freed up for a site visit at the same time. A fourth case cited the study's burden as a reason to refuse, with no further explanation.
- Four schools gave reasons for dropping out which the Applied Management Sciences study team viewed with skepticism. One pleaded medical advice: the site visit, we were told, had been judged dangerous to the Financial Aid Officer's health. Another cited a conflict in timing between the scheduled site visit and a regional NASFAA meeting, after several other schedule adjustments, and was later heard to have been charged with major irregularities by the auditors. Two state universities were totally uncooperative. In the one case, a Financial Aid Officer was unreachable, protected by at least two levels of secretaries; in the other, we were greeted from the start with such outspoken hostility that it was clear that the Aid Officer would do what he could to prevent a site visit.

- Six schools were dropped by Applied Management Sciences. Two were dropped because their students would be unreachable (a maritime college's students were scheduled to be at sea for the entire period of field work; a national degree-granting school had its students decentralized across the entire country). In a third case, a college on the Bering Straits of Alaska was dropped rather than try to reach the site in the middle of the Arctic winter. A fourth school turned out to be out of scope (a nursing school based in a hospital). The remaining two were dropped after it was learned that they had been sampled for another federally-sponsored financial aid study (further, a number of additional colleges were eliminated from the sampling frame for this reason, as noted above).
- For the remaining seven cases, no particular reasons for non-cooperation were recorded; on the basis of recollections, we judge that these schools probably reflect the same patterns -- some inability to handle the burden, some simple disinterest, and some fear of a review -- that the other dropouts have displayed.

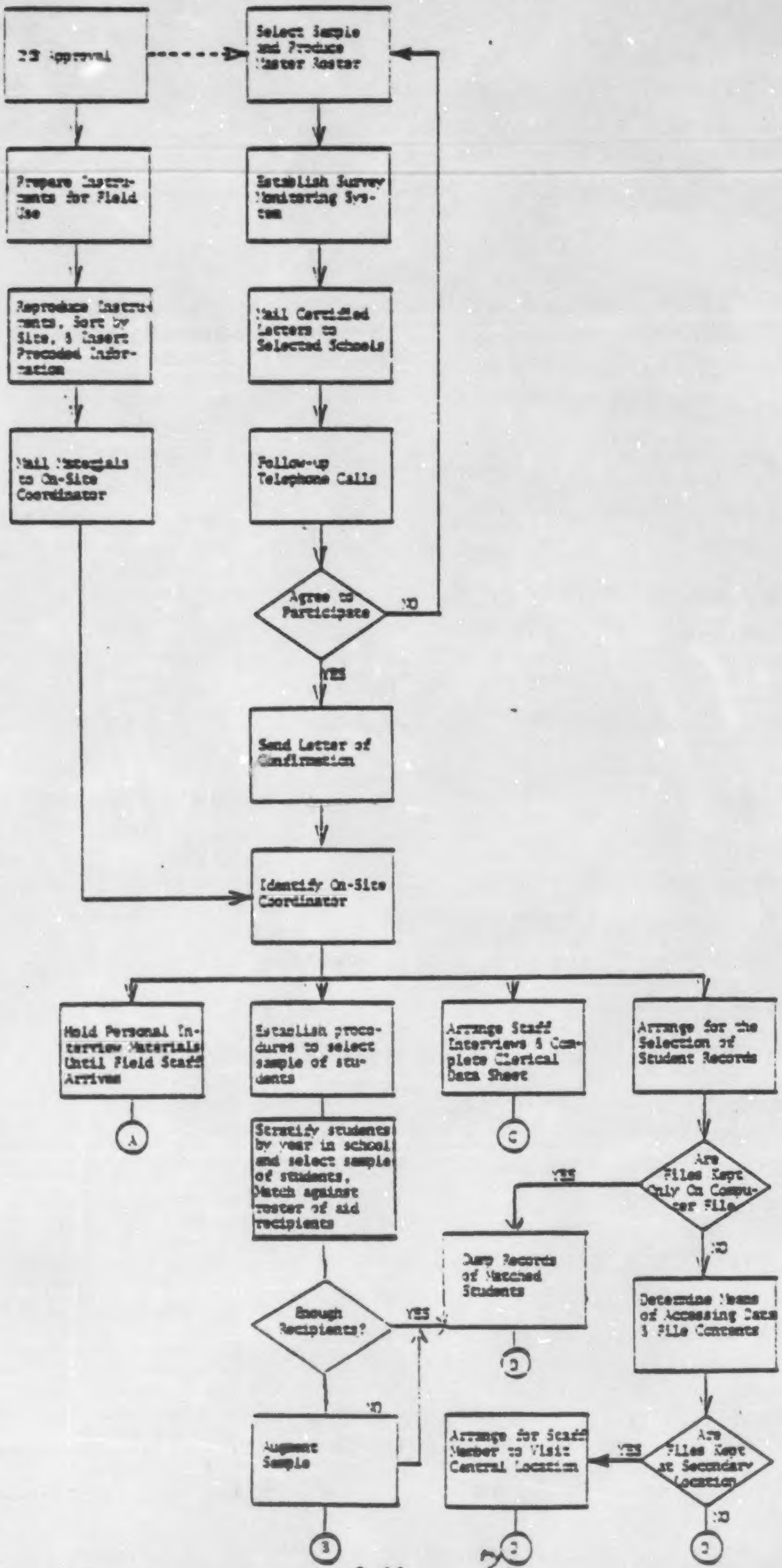
Although some schools could not participate (and a few were plainly hostile), the great majority of the institutions contacted for this research were quite cooperative, supportive of the project, and willing to go to considerable lengths to assemble the statistical information requested by the study. This was not an easy project to work with for any of our respondents. Each institution had to make a special effort to collect a great deal of information from its files and records. The original estimate of the study's burdens was "at least a week of elapsed time" to identify a student sample, notify the students, provide statistical data and other information for the institutional forms, and participate in the actual on-site interviews. In fact, many schools found that considerably more time was needed to handle these tasks. During the field period of the work, schools were in their peak work season, collecting student applications for the 1979-80 academic year and working on the preliminary packaging of awards. In general, the schools displayed an impressive willingness to cooperate. For their efforts, each school received a $100.00 honorarium.

As soon as the group of participating institutions had been identified, preliminary travel swings were developed. A memorandum was prepared and mailed to each school describing procedures for selecting the sample of students (as described earlier) and suggesting a tentative visitation date. Subsequently, second-round telephone calls were made to the Coordinators at the sites, to confirm or reschedule the visits and to answer any questions with regard to the selection of the sample of students. Technical assistance was provided by Applied Management Sciences staff to help the Coordinators in many cases. The most common type of help was to lend counsel on ways to select a random sample of students, because sampling often had to be custom-tailored to fit the peculiarities of local filing systems. Many schools also requested and received help in dealing with the institutional statistics called for by the project. At the conclusion of these calls, final travel swings were developed to accommodate individual institutional scheduling. In developing the travel swings, it was decided to schedule two sites per week (two days per site), with one day in between to allow for travel from one city to another.

To reduce the study burdens, data from the 1979 Fiscal Operations Report and Application to Participate in Tripart Programs (FISAP) forms submitted by the schools to obtain Federal funds were precoded onto Part I of the Institution Questionnaires. The precoded questionnaires were then mailed to the schools prior to the site visit. In some cases these FISAP data were inaccurate, but on the whole this step seems to have helped most respondents by reducing the need for them to assemble statistics for this study.

Next, a second mailing of relevant information and materials for conducting the site visits was sent to the Coordinator at each school. This mailing consisted of: 1) student notification postcards; 2) information on student interview arrangements; 3) a form to be used as a roster, to indicate if students were aid recipients or not; 4) an appointment guide; and 5) a summary of the areas to be addressed in the interview schedule sections of the Institution Questionnaire. Moreover, extensive calls were made to all sites at this time to facilitate on-site logistics, particularly with regard to increasing student participation. Exhibit 3.2 presents the steps undertaken during previsit planning.

EXHIBIT 3.2: PREVISIT PLANNING AND CLERICAL DATA COLLECTION


OMB Approval
Select Sample and Produce Master Roster
Prepare Instruments for Field Use
Establish Survey Monitoring System
Reproduce Instruments, Sort by Site, & Insert Precoded Information
Mail Certified Letters to Selected Schools
Mail Materials to On-Site Coordinator
Follow-up Telephone Calls
Agree to Participate
NO
YES
Send Letter of Confirmation
Identify On-Site Coordinator
Hold Personal Interview Materials Until Field Staff Arrives
Establish procedures to select sample of students
Arrange Staff Interviews & Complete Clerical Data Sheet
Arrange for the Selection of Student Records
A
C
Stratify students by year in school and select sample of students. Match against roster of aid recipients
Are Files Kept Only On Computer File
YES
Dump Records of Matched Students
NO
Enough Recipients?
YES
D
Determine Means of Accessing Data & File Contents
NO
Augment Sample
Arrange for Staff Member to Visit Central Location
YES
Are Files Kept at Secondary Location
NO
B
D
D

3.3: Obtaining the Cooperation of Students

The design for this project called for student interviews to be administered on-site during the two-day visits. The students were to be notified via postcards mailed from the local schools (in a few cases, Applied Management Sciences staff helped to prepare and send these cards). Depending on the local circumstances, the student interviews could be conducted en masse, in group format; they could be handled individually, during a walk-in period; or they could be conducted by appointment. All of these approaches, singly and in combination, were used in the field. Once the project got underway, it quickly became apparent that response to the student interviews would be a problem; more than half of the possible respondents were not appearing to complete their questionnaires, in spite of a promised three-dollar cash payment.

To deal with these problems, a number of steps were improvised. A mailed version of the student questionnaire was prepared and used to conduct a second request for participation from all initial nonrespondents. It was assumed that many students would cooperate if they did not have to come to the campus for the interview, or if they were able to complete the form at a time of their own choosing. In fact, as many students responded through the mail as were reached on-site. The same three-dollar payment was offered. In addition, the notification material was expanded from the rather terse note used for the original postcards, into a cover letter for the mailed instrument that stressed the large financial stakes at issue and the reasons why students might serve their own self-interest by cooperating. Furthermore, the assurances of privacy of student data were made much more explicit. Through these and other devices, the overall student response has been raised up to acceptable limits. (A more detailed analysis is provided in Chapters 5 and 6.)

Finally, it should be noted that a number of students heard of the study and asked to participate even though they had not been sampled. Such willing informants were turned down (since they would confound the validity of the sampling process). At least one student thought he should pay Applied Management Sciences for his participation, and enclosed a check with his completed questionnaire! His money was refunded, along with a check for three dollars for his participation. In addition, several hundred respondents supplied additional comments, stories about their financial aid problems, and other anecdotal material.

3.4: On-Site Data Collection Procedures

Immediately prior to the conduct of the site visits, the field staff reconfirmed all interview dates with the Coordinators at their sites. Further, reconfirmation was also made one day before the teams' arrival at the various institutions (two of the schools described earlier chose to inform us of their decision to drop out of the study at this late point).

While the procedures for conducting the on-site interviews were flexible, to allow for variations in each institution's particular situation, a general format was adhered to whenever possible. Upon arrival at each institution, the interview team met with the local site Coordinator to run through the site visit agenda, ascertain how the interviewing schedules had been set up, determine the status of Part I (the statistical section) of the Institution Questionnaire, and answer any questions which might have arisen. In addition, at this time the team ascertained how to access students' records in order to transcribe the information necessary for the Record Review Forms.

Next, team members met with the "Senior Academic Official," a representative designated by each school, in order to introduce themselves, provide an overview of the activities to be undertaken on the campus, and elicit information on overall institutional policies and views regarding the Federal financial aid programs.

The remainder of the interviews were divided among the members of each field team. One person bore the responsibility of administering Part II of the Institution Questionnaire to the Financial Aid Officer, the Chief Fiscal Officer, and the Loan Officer. While the survey instrument indicated the anticipated respondent for each section, it was sometimes necessary to meet with other, more appropriate sources of information, due to idiosyncratic allocations of responsibilities within schools. For instance, an institution may not have a Loan Officer *per se*, so that these responsibilities have to be handled by another individual. Each of the interviews with institutional personnel was conducted face-to-face, with the interviewer both asking the questions and recording the responses.

The second team member was charged with administering questionnaires to randomly selected samples of students. As students arrived, their names were checked against student rosters in order to keep a complete account of response. This facilitated accessing the records of the financial aid recipients (and applicants) who participated in the survey, and it was the basis for implementing the mail follow-up of student non-respondents. The interviewer briefly described the goals and the purpose of the study to the students, and encouraged the respondents to add any comments on financial aid that they wished to convey. As students finished, the questionnaires were briefly reviewed for completeness, and the interviewer assisted in completing any questions left unanswered.

In addition to administering the student questions, the second team member was also responsible for transcribing data from student financial aid files onto the Record Review Forms. Record Review Forms were also completed for up to ten aid applicants who had subsequently withdrawn from the school. In some cases, it was necessary to arrange for someone from the aid office to assist in locating files and additional records, because student aid packaging was often underway at the time of the visits and typically files were in use by aid office staff.

Before leaving a site, the field staff reviewed the status of all site visit materials. In some cases, schools were given additional time to compile and submit statistical data. A scan edit was performed on the Institution forms at this time to make sure that all questions were addressed. (Scan edits for the Student Questionnaire were performed as the forms were collected from the respondents.) After reviewing the instruments, the forms were tallied and a site visit report, summarizing the status of all these activities, was completed (see Exhibit 3.3). Completed instruments, site reports, student rosters, and all other documents pertaining to the school were then packaged and mailed to Applied Management Sciences. In a number of cases, additional post-visit contacts were made to complete record reviews, to clarify responses, to remind Coordinators to mail in their completed statistical reports, or to otherwise improve the data base. When all materials were complete (or as complete as feasible), the $100 institutional contribution was paid.

3.5: Coping With the Study: Institutional Complications

The above sections describe the events and approach of this project at the majority of institutions that were visited. A review of the site visit records indicated that no problems at all were encountered in 83 of the schools. A "problem" for these purposes is anything sufficiently disconcerting to cause the field teams to report it to Applied Management Sciences, either formally in the site report or less formally through other communications. In at least 22 of the remaining cases, the completeness of a school's response was demonstrably improved after Applied Management Sciences provided technical assistance, additional time to perform manual calculations or computer runs for the production of statistical data, financial support for machine costs, or other help. In at least 12 more cases lack of computer access (which appears to be the norm for most financial aid offices) or other kinds of dependence on manual approaches to the compilation of numbers was given as a reason for the inability to provide all of the information that had been requested. Many aid offices appear to be very thinly supported, both in terms of staff and in terms of total resources, so that cooperation with a demanding research project can present serious difficulties for even the most well-intentioned school.

EXHIBIT 3.3: SITE COMPLETION FORM

Interviewer ______________________________

School ID ______________________________

Part I INSTITUTION QUESTIONNAIRE

Completed __________ Incomplete __________

Problems:

Resolutions:

Part II INSTITUTION QUESTIONNAIRE

Completed __________ Incomplete __________

Problems:

Resolutions:

STUDENT QUESTIONNAIRE

Total number of students in sample ________
Number of questionnaires completed ________

Remaining Students: ________ addresses obtained
(Check one) ________ FAO will send addresses

Note: For those students that it will be necessary to mail the questionnaire to, please be sure to put the sequence number next to the name and address.

Problems:

Resolutions:

RECORD REVIEW FORMS

Total number of aid recipients __________
Number of aid recipients completed __________

Total number of withdrawals __________
Number of withdrawals completed __________
Withdrawals could not be identified __________

Total number of aid applicants (not including aid recipients) __________
Number of aid applicants completed __________
Aid applicants could not be identified __________

Problems:

Resolutions:

Short-staffing, high personnel turnover, and very heavy work loads were cited as a reason for the inability to provide data in at least eight cases. Probably other schools also encountered this difficulty, because after the first few weeks of field work this problem became so commonplace that field teams were less likely to call attention to it. "The Financial Aid Officer here is also a baseball coach and has been a temporary admissions officer," one team reported. Another noted, "This is a one-person office, there's no other staff, even though it's a four-year college. He took over on 1/79." "The FAO has no help," reported still another team, "he does everything himself... For 10 years he has made less than $8,000 a year." In a very small proprietary school, another team told us, "Absolutely no information...the school just changed hands...in addition, the woman who did the BEOG (Basic Grant) paperwork quit without telling anyone anything." Still more examples:

- "There have been three, maybe four, Aid Directors here in the past few months."
- "Lack of data available. Little preparation by the Financial Aid Officer, who's new..."
- "There have been three FAO's here in the last 4-5 years. This one's been on the job four months...his staff did not know how to get most of the information...no systems, no concept of equity packaging (or of any kind of packaging, for that matter)."

These comments point to at least one major finding of this project: the schools are not always likely to fit a predetermined model of a well-run financial aid operation, either in the level of effort and resources they commit to this function or in the basic knowledge they may have of principles of financial aid operations. This conclusion is supported both by the anecdotal information contained in the previous Site Visit Report and by the more statistical analyses to be submitted later.

A surprising number of schools have branches or other satellite operations. Office of Education files--in particular, records from the Basic Grant Universe File and the FISAP File--and those of the National Center for Education Statistics (e.g., Higher Education General this research. This presented field teams with the need to allow for evening sessions for student interviews--an additional (and generally unanticipated) burden which they met, on the whole, without complaint.

Every conceivable type of academic calendar was encountered, including calendars which are completely variable (such as those in a trade school which admits students for a given training sequence at any time). Many schools of this latter type have programs that may be completed in six months or even less. Thus the traditional division of students into four class levels does not apply to all schools in this study. The same kind of gross variation was discovered in grading standards. If an approach to grading can be imagined, someone is evidently using it. There are schools with 12-point scales; schools with four-point scales in which A is denoted by a 1.0 and D by a 4.0; schools with four-point scales that do not, in fact, ever award either D's or F's; schools which do award failing grades but then do not count them in computing cumulative averages; and all manner of other derivatives and idiosyncracies. The result: grades from one place cannot be compared with grades from another, at least not directly.

Schools in this report also vary in their general type, mission, size, history, age, selectivity, wealth, and other characteristics. Despite the common stereotype of the proprietary school as a relatively unimpressive type of postsecondary institution, some of the proprietaries in this study are 50 to 75 years old and have enviable histories as respected trainers of young people, both in their own communities and to some degree throughout the nation. There is a private, two-year, technical/vocational, church-related, large college in this study--a type that is very rare. There are extremely isolated colleges, including at least two schools that primarily serve Native Americans; these institutions are atypical in many ways, including the kinds of resources they use and the problems they have in operating assistance programs. This study also includes representative examples of virtually every well-known kind of postsecondary school, from the most prestigious universities to the smallest beauty schools, from traditional liberal

Information Survey) do not treat these consistently, so in a few cases our sampling, which was based on these sources, turned up a *central office for a branched system* which in others the sampled school turned out to *be a branch of such a system*. Coverage of the project in each such case was settled *ad hoc*., seeking to ensure that each case included a specific financial aid operation and all those students covered by that operation. In several instances remote branches or other satellites were excluded, with appropriate adjustments to the enrollment estimates that were used to develop student sample parameters and population estimates.

Many schools are part of larger, complex systems. All of the following are included in this study:

- a vocational school in a large state system, with central coordination of student assistance (here the central office was included in the field work, visiting both locations to complete the "site");
- a major state university system with centralized loan processing (again, a second location was visited by the site team, some 300 miles distant from the campus);
- a city university system, also with centralized administration of aid (again, the team visited both locations);
- a school that services many of its students through contract arrangements with other colleges;
- a proprietary school that handled financial aid through the use of a consultant (a common arrangement for many very small institutions); his office, located in another city, became the primary interview site; and
- a chain of proprietary schools with aid handled from the central headquarters of the chain (again, multiple locations were visited; the study includes several such cases).

In all, at least 11 of the institutions required visits to more than one geographic location in order to cover all of the basic requirements of the design.

Presence or absence of night schools was also an unforeseen complication, because many colleges now are stressing half-time or better degree programs through this route. Accordingly, in some schools substantial numbers of evening students were eligible for the samples for

EXHIBIT 3.4: TYPES OF FORMS AND WRITTEN MATERIALS USED BY FINANCIAL AID OFFICES

A. General

Financial Aid Information booklets (may be section of general catalogue)
Consumer Information brochures (usually, an expanded version of the above)
Financial Aid Applicaions (institutional; often with separate instructions)

B. Other Applicant Forms

BEOG Applications ('78-79 for current year; '79-80 for coming year) and Student Eligibility Reports (SER's)
FISL Applications and instructions
Indian Grant Applications and instructions
Applications for LEAP, Health Profession Loans, Rehabilitation, and other programs of aid
Financial Aid transcripts
CSS/FAF or other Parent's Confidential Statement
IRS 1040's (required by an increasing number of schools)

C. Packaging Tools

Need Analysis Work Sheets/Adjustment Work Sheets
Student Budgets (ordinarily reviewed and revised annually)
Packaging Rules (ordinarily reviewed and revised annually)
Master records of student's aid packages (cumulative)

D. Institution-Applicant Communications

Award letters/instructions/affidavits
Regrets letters (may be several versions)
Waiting list letters
Form letters for requesting information: SER's, PCS's, etc.; for notification of overaward; for information on GSL's; etc.
Unclaimed check notices

arts colleges to highly specialized technical schools, from institutions that are deeply rooted in their own traditions to schools that are creations of the past decade.

One of the most telling variations from one college to the next is the extent of systemization of aid as embodied in the use of prepared forms. The field teams were encouraged to obtain as much supporting material from the schools as practicable. In some cases virtually every standard form used by a financial aid office was provided; in others, forms of particular interest were sent back to Applied Management Sciences. Exhibit 3.4 lists the major types of forms collected during the site visits. Over 50 separate types of records or other documents are identified. Many schools use virtually all of these different forms; some apparently use only a few of them.

In addition to these kinds of materials, field teams also obtained copies of aid data processing system manuals, annual reports on financial aid, college catalogs, surveys of entering freshmen, surveys of aid recipients, student newspapers with articles on aid, statements of institutional spokespersons made to lobbies or directly to the government on financial aid programs and policies, external and internal audits and financial statements, and detailed financial aid calendars. Again, no one school was very likely to provide all of these materials, and many schools seemed to operate without making much use of any of them.

3.6: Data Processing Procedures

A. Respondent Tracking System

As soon as a set of data collection instruments was returned from a site, it was logged in and thoroughly examined for completeness or other problems. The counts of forms by type and any information regarding problems were then recorded on the Survey Control Form, a sample of which is shown in Exhibit 3.5. This form was generated by the Fully Automated Respondent Tracking System used in this study to track each participating institution from the point of intial contact through the receipt and processing of the data collection instruments and to flag and monitor any needed followup activities at any stage in the survey process. Additionally, as seen on the form, it allowed for careful tracking of the processing status of all forms collected from each institution. From this information, summary status reports could be produced, and were generated on a weekly basis, to indicate the overall progress of the survey data base development system. An example of one of these Data Flow Reports is given as Exhibit 3.6.

B. Document Coding

All survey instruments were submitted for a manual edit after being logged in through the receipt control system. The purpose of the manual editing procedure was to examine returning documents for completeness and consistency and for the application of codes to reduce written responses to open-ended questions into numeric data for machine processing. Editor's manuals were developed for each instrument type to insure uniformity among processors when interpreting responses and ascribing codes. (Coding manuals and file documentation are provided in Technical Report No. 2: Data Processing and File Documentation).

In order to provide editors with the ability to adequately identify erroneous data, each person contributing to the editing process was required to attend an indepth session on the use of the manuals. Training for this session encompassed the following material:

- background and overview of the study objectives;
- question-by-question instructions for each form type and a discussion of the kind of responses to expect; and
- a rudimentary explanation of computer data processing.

The editors held primary responsibility for reviewing the student instruments (both on-site and mail survey forms) the record review forms and the institution mail survey forms. The institution forms completed on-site, however, were more complex and were edited by senior staff who had originally participated in their design.

EXHIBIT 3.4: (Continued)

E. Internal Communications

Disbursement authorizations
Cancellation forms
Certification of academic standing
Certification of enrollment
Add/drop/withdrawal forms

F. Loan Forms

NDSL statements
Promissory notes
Disclosures
Notifications
Bills
Requests for postponement/deferment
Exit interview forms
Repayment schedules

G. Work-Study/Other Student Employment

Employer's request for student workers
Supervisor's report on student worker
Employment application form
Off-campus employer agreement
Time sheets
Limitation notices
Employment Contracts

H. Federal Program Reports

FISCOP
FISAP
Notice of Funding
Request for Modification of Payment Schedule
Institutional Progress Reports
Audit Reports

I. Others

Institutional audits
Institutional financial aid reports
Applicant's institutional validation checklist
Emergency Loan Fund Application
Welfare/food stamp forms/instructions

EXHIBIT 3.6: DATA FLOW REPORT

G-123 DATA FLOW REPORT

SITE VISIT DATA

Form Type	# Forms Anticipated	Forms Received #	Forms Received %	# Forms Coded	# Forms Sent to Keypunch	# Forms on File
Institution Part I	172	170	99	170	170	167
Institution Part II	172	172	100	171	171	171
Students Forms	19,252	7,860	41	7,860	7,820	7,200
Record Review Forms	11,330	11,330	100	11,320	11,330	11,320

MAIL SURVEY DATA

Form Type	# Forms Mailed	Forms Received #	Forms Received %	# Forms Coded	# Forms Sent to Keypunch	# Forms on File
Students Forms	11,273	4,432	39	4,432	4,432	4,260

		Forms Received # Complete	Forms Received # Refused	Forms Received # Undeliverable	# Forms Coded	# Forms On File
Institution Mail Instrument	1,330	423	28	15	450	--

EXHIBIT 3.5: SURVEY CONTROL FORM

```
U-129/SISFAP III  SITE VISIT SAMPLE: F.A.R.T.S. SURVEY CONTROL FORM    (1/30/79)

4EUG
ID #     NAME                                  ADDRESS

13H0H    BILLINGS BUSINESS COLLEGE             3125 THIRD AVENUE NORTH        BILLINGS                  MT  59101

                                                                              TELEPHONE:  (406) 245-3413

         PRESIDENT: MELVIN W ROE                                                CONTACT: MELVIN ROE

               FAO: MELVIN ROE

           CONTROL: PROP

             LEVEL: 6-MO                                                      DATE        REMARKS

              TYPE: BUSINESS
                                                    INITIAL LETTER SENT       __/__/__   ____________________
              SIZE:    140
                                                     1ST PHONE CONTACT        __/__/__   CALLER: _____________
              COST: $ 1625
                                                 AGREED TO PARTICIPATE        __/__/__   YES  NO   IF NO, WHY: ______________
            STRATA: GRUP
                                                  SITE VISIT DATES SET        __/__/__   CONFIRMED?  YES  NO
    EXPECTED STUDENT                                                                     START DATE: NONE  TEAM NONE
         SAMPLE SIZE:    79                                                                    DAY: NONE

                                                      PART I PRECODED         __/__/__   ____________________

                                          STUDENT POSTCARD PACKET SENT        __/__/__   RECEIVED?  YES  NO

                                          SITE INSTRUMENT PACKET SENT         __/__/__   RECEIVED?  YES  NO

                                                 SITE VISIT COMPLETED         __/__/__   ____________________

                                                       FORMS RECEIVED         __/__/__   # STUDENT FORMS RETURNED: ___
                                                                                         # RECORD REVIEW FORMS * : ___
                                                                                          INSTITUTION Q - PART I : YES  NO
                                                                                          INSTITUTION Q - PART II: YES  NO

                                                   SCAN EDIT COMPLETE         __/__/__   ____________________

                                                     SENT TO KEYPUNCH         __/__/__   ____________________

                                                    KEYPUNCH COMPLETE         __/__/__   ____________________

                                            MACHINE EDITING COMPLETE          __/__/__   ____________________
```

F. SPSS Processing and Data Files Creation

After all forms completed the machine edit phase and all individual errors were resolved and corrected, all batches of records for each form type were merged and read into the computer using SPSS. This standard Software package was used to: a) make additional changes or corrections to individual data elements; b) enter codebook information to provide SPSS-generated file Documentation; c) produce SPSS system files to be used for data description and later statistical analyses; d) merge additional information from other files, specifically institutional characteristics and sampling weights; and e) generate final clean updated raw data files for delivery to the United States Office of Education.

After completing the editing/coding process, all forms were submitted to the edit supervisor for a final scan edit to screen for human error and to provide corrective instruction to the editors.

C. Keypunching of Data Collection Forms

After manual editing and coding were completed, forms were counted, batched, and logged-out for keypunching. A commercial keypunching service punched, key verified, and loaded on to tape, each batch of forms. When returned, forms were logged-in and counts made to verify completion of the entire batch.

D. Forms Storage

After keypunching and batch count verification, hard copy documents were filed by institution in alphabetical order by State for ease of retrieval. All forms were stored in a locked facility to protect confidentiality and privacy of individual information.

E. Machine Editing

The next data processing task was to perform a machine or computer edit to: 1) act as a back-up of the manual editing; and 2) to perform special edits that would have been very time-consuming if done manually. Using Applied Management Sciences' in-house computer terminals, a machine edit procedure was devised. First, simple range and dependency checks were performed for each questionnaire item. Then, consistency checks were made between questionnaire items. As data were returned from keypunch operations, they were entered as a file and subjected to the editing process. Errors were reported on a listing and corrected, for specific individual cases using the ALPHA edit facility when necessary, or through the use of the transformation processor available in the Statistical Package for the Social Sciences (SPSS) during the final update and merge run described in the following section. The file was then re-edited until all errors had been resolved. When every batch had been corrected, the entire file was merged and reformatted for use in data analysis using SPSS, as discussed below.

F. SPSS Processing and Data Files Creation

After all forms completed the machine edit phase and all individual errors were resolved and corrected, all batches of records for each form type were merged and read into the computer using SPSS. This standard Software package was used to: a) make additional changes or corrections to individual data elements; b) enter codebook information to provide SPSS-generated file Documentation; c) produce SPSS system files to be used for data description and later statistical analyses; d) merge additional information from other files, specifically institutional characteristics and sampling weights; and e) generate final clean updated raw data files for delivery to the United States Office of Education.

4

ASSESSMENT OF STUDENT SURVEY YIELD

4.1: Introduction

This chapter focuses on the technical issues of student survey instruments yield--that is, on conditions of item nonresponse. These can result from a variety of circumstances: simple respondent errors (such as skipping over an item, failure to follow or comprehend instructions, etc.); reticence to disclose information; and problems related to the design of the survey instrumentation. The last category can be further detailed:

- Issues of item wording: are all terms clear? Can every respondent be reasonably expected to answer the questions as posed? Is the form completely unambiguous?
- Issues of item placement and complexity: respondent exhaustion can be expected to result in more "no answers" (NA's) at the end of an instrument than at the beginning, and particularly complicated responses--those that require effort on the part of respondents--can also be expected to generate higher rates of nonresponse.
- Issues of instrument design: coding conventions established in advance may be found in retrospect to lead to unwanted limitations or substantive implications for the data base.

Ordinarily when one attempts to explain particularly severe nonresponse problems for any given survey item, the explanation must necessarily be speculative to at least some extent, as many of the possible alternatives noted above may apply and there may be no certain way to rule out every one of these.

Most surveys are, to some degree, inherently ambiguous. One strives to eliminate this, but surveys are seldom utilized to deal with well-established kinds of phenomena. Some uncertainty is therefore virtually inevitable. Consider for example the seemingly straightforward matter of establishing a student's financial independence. Even though the rules are clearly stated, one cannot always suggest a fool-proof convention for resolving inconsistencies when a particular case reveals such problems. Suppose a student states that he/she is dependent but are supporting a spouse. First, this apparent "contradiction" is eminently possible because official dependence is dictated by a student's past history: if one resided at home last year and then married, that person would remain dependent by current financial aid practices. This ambiguity is not inherent in the technical survey; rather, it stems from the subject matter that the survey addresses. Further, even if the dependency rule were altered so that any married student automatically became instantly independent (we are not endorsing such a move, by the way), a different kind of technical ambiguity would reamin, because one cannot know which response contains the error. Is the student actually independent? Or is the response for supporting a spouse the error? Without recontacting the respondent, there is no way to know.

As such, the analysis of survey yield at the item level becomes very constrained by the content of the questions. Many possible explanations may be attached to each instance of nonresponse. To assist a systematic examination of this problem, it is most helpful to rank-order the survey's items by nonresponse rates; this provides a useful perspective on the results by contrasting those questions which have serious problems with others that do not. In a well-managed survey research project, the great majority of the variables should fall into the latter group.

Provided below, are discussions of item nonresponse for both the student questionnaires and the record review forms. The substantive implications of these two discussions are quite different, because in dealing with the student questionnaires we confront a classic survey situation and the analysis is primarily one that treats the propensity of respondents to cooperate. This is not the case at all with the record reviews, which are subjected to a totally different kind of influence; the decision of each financial aid operation to keep or not keep specific types of information. Before moving to a detailed discussion of these matters, however, a brief background presentation is made to explain how the final basic data files for this project were assembled, i.e., how the data were affected by editing, coding, and data "cleaning" procedures (the latter are customarily employed to eliminate stray error codes from a file--that is, out-of-range response with no interpretable meaning).

4.2: Editing and Cleaning of Student Questionnaire and Record Review Form Data

Completed student questionnaires and financial aid record review forms were subjected to extensive manual editing, coding, and machine cleaning procedures. The manual edits[1/] were principally directed at such matters as clarification of marginally legible responses, correction of off-column responses and other self-evident kinds of respondent errors, and the insertion of specific codes for open-ended queries. A limited number of internal logic checks were also performed manually. For example, if a respondent did not indicate financial dependency status but said that they supported other persons, the "NA" response for dependency status was changed to "independent." All open-ended responses were literally transcribed, and examined later to determine how such responses could be grouped. Machine edits were then used to reclassify these responses where this seemed appropriate.

The final machine edits were used to inspect the data distributions for every variable. Stray error codes--mispunches that had escaped the editing processes up to this point--were detected and reassigned to

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[1/] For a complete discussion of all data processing steps, including all editing specifications, see Technical Paper No. 2: Student Data Base Development and Documentation Report, September 30, 1979.

missing value codes (i.e., "no answer"). (Preliminary runs provided in Appendix B, may still contain a few of these; they will be reclassified before submission of the final data tapes at the completion of this study.) Where filters were used--that is, where prior responses relieved some respondents of the need to address a question--then separate missing value codes were devised to also denote those "not applicable." The latter step is critical for the assessment of yield, since without it, those who should have responded to a question but did not do so would be mixed together with those who were specifically instructed to skip the item.

A number of other logical conditions were also tested and resolved by machine edits, such as distinguishing between zero and blank (i.e., missing) responses for continuous variables (e.g., income). Further, a number of other miscellaneous matters were treated:

- In both student questionnaires and record review forms, the variables for class rank (freshman, sophomore, etc.) and major field of study (agriculture, biological sciences, etc.) allowed for the specification of open-ended "other" codes in the event that none of the precoded responses seemed clearly applicable. On inspection, some of these "other" fields were regrouped with the precoded categories while others were added to the original list of codes as fields of interest in their own right (a decision resting on whether or not a significant number of students named the particular "other" class rank of major). For example, third-year vocational-technical students (of whom there are at most five cases in this study) were combined with the second-year vo-tech cases, but special students and various other kinds of unclassified respondents were left as individual categories. In the case of major fields, architecture was combined with engineering, library science with fine arts/languages/letters; on the other hand, communications majors and persons preparing for the ministry were left as unique categories.
- All other open-ended questions were retained in their original form. That is, the general "other--specify" response was retained in the original variable and a separate item was included to break out the distribution of those giving such responses.
- A problem existed for both student questionnaires and record review forms in the data for current grade point averages, which reflect inconsistencies in practices from one school to the

next. There were at least three major types of grading systems in use at one or more of the 172 schools in the study: the traditional 4.0 system; a 0-100 system; and a reversed system where 1.0 = "A" and 4.0 = "D" or less. To determine what system of grading applied, reference was made to an item included in the institutional survey forms for this purpose. Telephone calls were made to a number of schools to clear up ambiguities. To place all schools on a comparable basis at least insofar as grading conventions are concerned (of course, differences in standards also confound school-to-school comparisons), all grades were converted to the 4.0 system, by far the most common one.

- Certain items in the student questionnaire, such as checklists for sources of financial aid or reasons for not applying for aid, presented a possibility of multiple responses. To define those not answering these items, the pool of eligible respondents was defined, if necessary (e.g., all those instructed not to answer the question were excluded), and then a check was performed to identify any remaining (non-exluded) cases that checked none of the items in the list. Although this is not perfectly equivalent to a more direct "no answer" code (because it can include those respondents who judged no item to be applicable), for most of the multiple-response checklists in this study this possibility is not a very serious threat. Most of the checklists are virtually exhaustive or allowed for explicit "other--specify" options. In retrospect, some could have been improved by including an explicit "Don't Recall" or Don't Know" response.

- Certain inconsistencies in the data base were left alone. For example, there are small discrepancies (on the order of one percent of all applicable respondents) between the number saying they received a guaranteed student loan in the general checklist of all sources of aid, and the number saying the same thing in the item specifically directed at this possibility (Question 47A).. Such discrepancies could be related to effects introduced by filters (i.e., the checklist explicitly refers to "Federal or state guaranteed loans" while Question 47A applies only to those who received some form of Federal assistance).

In addition to these refinements, all student records have been appended with a set of selected institutional data to facilitate matching with school variables and to permit cross-classification of student data with the most basic institutional parameters of the study. These include variables classifying students as to the geographic location of their schools (by state and by ZIP codes); by the school's control (public/private nonprofit/proprietary), level (two-year, four-year, etc.), type (trade/technical, theology, etc.), size (enrollment), cost of education, and selectivity (dichotomized). These items are also present in combined form in a code for sampling strata, and each case is also tagged with weighting parameters and related adjustment values. Detailed item-by-item marginal frequency distributions can be found in Appendix B.

4.3: Item Nonresponse: The Student Questionnaire

Presented in this section is a discussion of no answer rates for every variable in the student questionnaire, beginning with the lowest rates of nonresponse and proceeding to the items with the most severe missing value problems. Our overall judgement is that item nonresponse is not a general problem for this project; most variables seem to have worked reasonably well. However, a few selected items do have nonresponse rates high enough to require detailed attention.

In all cases, respondents who were "not applicable" have been excluded from the calculation of nonresponse. The base upon which nonresponse rates have been calculated, therefore, is those who could have answered the particular question. This is, many items are "filtered"--they are to be answered only by specified subgroups of respondents, and not by all. Examples include questions directed only at recipients of aid (the survey included nonrecipients), or at applicants for a Basic Grant (BEOG), or at those who were independent students. In general, filters are defined by a student's prior responses, but for some items dealing with detailed issues of BEOG, GSL, and the National Direct Student Loan (NDSL) practices, the filtering condition was somewhat ambiguous (and so these items tend to have higher rates of nonresponse due to the probable presence of undefined inapplicable cases in the nonresponse group). Nonresponse rates for such filtered items are only for those people who should have answered the individual item - excluding nonresponse to prior items.

For convenience in discussion, variables are grouped and presented in sets. The cutting points between sets may be arbitrary, especially in distinguishing those with very low nonreponse rates and those with moderately low rates. In all cases the results are based upon unweighted data.

A. Items with no measured nonresponse:

Group 1: variables with perfect (100%) response because information was entered by the research team, not by students:

--school attended

--type of form used (mail vs. on-site)

Group 2: variables where those not answering could not be identified. In each of these cases at least one possible legitimate response was not coded, so that a student could fail to reply without violating the survey instructions:

- participation in each of three financial aid outreach programs (Upward Bound, Talent Search, and Special Services): only participation was coded, so no answers include nonparticipants. This combined nonresponse/nonapplicable rate is 98.8, 98.6, and 97.2 percent, respectively, for these items. This does not, however, inhibit the ability of the survey to isolate such cases for a separate treatment.
- status as a continuing or as a transfer student. First-time entering students are a residual class and are included in the undefined class along with no answer. This undefined group comprises 9.9 percent of the responses (since the survey was taken in the Spring, freshmen enrolled the previous Fall would be continuing students).

B. Variables where the nonresponse rate (in parentheses) is negligible to low:

- marital status (0.3%)
- current living arrangements: on-campus, off-campus with parents, off-campus without parents (0.3%)
- the set of items dealing with making application for specific kinds of federal aid: applying for a BEOG, CWS, etc. (0.4%)
- sex (0.5%)
- high school grades (0.7%)
- race/ethnicity (1.0%)
- dependent/independent status (1.0%)
- whether respondent supports other persons (1.2%)
- whether respondents received aid counseling from their high schools (1.2%)
- respondent's own household size, if applicable (1.4%)
- types of persons who may have helped an applicant complete financial aid forms (1.4%)

- if respondent applied for aid this year (1978-79; 1.4%)
- timing (prior to receiving a loan, at receipt, or afterwards) of counsel on NDSL loans (1.5%)
- whether school helps students find their after-class jobs (1.6%)
- whether parents pay for post-secondary education of other siblings (1.6%)
- class level (1.7%)
- major field (1.7%)
- if student works while in school (1.9%)
- participation in CWS (1.9%)

Many of the items in the "B" list of variables represent straightforward demographic or other factual information and require no extended judgement by respondents. The nonresponse rates for marital status and current living arrangements (both 0.3 percent) probably represent the rock-bottom propensity for individual errors (such as skipping over a question during the course of an overly hasty attempt to complete the form), or minimal levels of resistance on the part of respondents to item content.

The question on whether a respondent applied for aid "this year" is an example of the modifications that were made to instruments when the original on-site student questionnaire was converted to a mailed instrument. The on-site version used a written instruction sheet and also incorporated on-the-spot reviews with respondents (when feasible) of each individual questionnaire to check for completeness. These devices were used to clarify ambiguity in the wording to this item; some students understood that the question was intended to get at applications made in 1978 for aid for the 1978-79 academic year, while others interpreted it to mean applying for aid at the time the survey took place (in the Spring of 1979). For the mailed version, the questions was improved, to specifically refer to applications for 1978-79 financial aid.

The remaining items in this group are fairly simple questions preceeded by extensive filters. For example, the questionnaire included the following set of three nested items asked only of those who received some form of Federal aid: whether the student received an NDSL loan; whether they received counseling on that loan; and if counseled, when (before receiving it, at the time of receipt, or afterwards). With so many opportunities for a case to become inapplicable, those that are prone not to answer tend to be picked up in the prior filtering questions, so that the group that is left to answer the specific question on the timing of aid is a highly selected set of persons who have managed to follow all preceeding instructions without error. It is not terribly surprising, then, that such highly selected questions have fairly low nonresponse rates.

C. Variables with low to moderate nonresponse rates (2.0 to 5.0 percent of applicables):

- if BEOG application was clarified, for those rejected (2.0%)
- month-of-birth (2.0%)
- year-of-birth (2.2%)
- student's 1978 income (2.2%)
- if counsel was provided on NDSL loans, for those receiving one (2.2%)
- the set of items indicating how many and what kinds of persons are supported by respondents, when applicable (2.3%)
- residence status for tuition and fee purposes (2.3%)
- current course load (2.3%)
- number of hours worked per week, for those employed while in school (2.4%)
- if student worked during summer (2.6%)
- number of siblings whose postsecondary expenses are being met by parents (2.8%)
- parents' household size (2.8%)
- parental income (see text; 2.9%)
- if student obtained help from third parties to complete financial aid forms, for those applying (3.1%)
- if student was enrolled in previous term (3.1%)
- number of persons in parents' household enrolled in postsecondary programs (3.2%)
- the set of items on various sources where financial aid forms were obtained (3.3%)

-- if student applied for any of five federal student aid programs (3.5%)

-- specification of "other" class status, for those indicating such a status (3.6%)

-- if student was informed of repayment terms for NDSL loans, for those receiving them (4.1%)

-- number of hours per week in CWS work (4.8%)

-- whether GSL's were made by a bank or by the school (on-site respondents only; 4.8%)

-- number of persons in the student's own household enrolled in postsecondary programs, where applicable (4.9%)

-- number of months student will be in school in 1978-79 (4.9%)

The month-of-birth data is needed only if the analyst desires to calculate age of respondents at some point other than January 1, 1979, which is an appropriate cutting point for this research. The nonresponse rate of 2.9 percent for parental income does not include those students who did respond by indicating either that their parents were deceased or that they did not know their parents' income--approximately a third of the cases. These responding "Don't Know" and inapplicable cases would need to be excluded in estimates of the average income.

As the rank ordering moves toward the end of this set of items, filtered questions and other more complicated respondent situations become increasingly common. This continues to be the case in the examination of the next set of variables, those with moderate-to-heavy NA rates.

D. Variables with moderate to heavy NA rates (5.1 to 10.0 percent of applicables):

-- if the local Financial Aid Counselor assisted the student in correcting or supplementing a BEOG application, for those submitting such applications (5.5%)

-- if student received a GSL, for those applying for one (5.6%)

-- the set of items dealing with various forms used to apply for aid, for the applicants (5.7%)

-- specification of "other" reasons for not applying for aid, for those indicating they had such reasons (5.9%)

- if the local Financial Aid Counselor suggested corrections or supplemental BEOG applications, for those submitting these (c.f. first item above; 5.9%)
- the set of items dealing with reasons for not applying for aid (6.0%)
- the set of reasons for submitting corrected or supplemental BEOG applications (6.4%)
- if such changes in BEOG applications led to eligibility for a grant (6.4%)
- percent of book/course material costs paid by parents (6.5%)
- hourly pay for CWS work (6.8%)
- percent of tuition costs paid by parents (6.9%)
- percent of "other" educational costs paid by parents (6.9%)
- specification of "other" major field, for those indicating such fields (7.0%)
- percent of food/board costs paid by parents (7.1%)
- hourly pay for non-CWS work (7.2%)
- percent of room/housing costs paid by parents (7.3%)
- summer earnings (other than CWS; 8.2%)
- CWS summer earnings (8.3%)
- the set of items dealing with various sources of financial aid used by students (9.0%)

In general, these variables exhibit greater complexity. They are frequently filtered. They require more effort in response, either sheer labor in examining lists of as many as 16 potential responses (as in the list of potential sources of aid), or recollection of detailed past events or behaviors (as in items dealing with the role of the Financial Aid Counselor in advising students about corrected/supplemental Basic Grant applications). Simple inability to remember can account for some of these nonresponse rates--for example, those for the items dealing with the particular forms a student may have used to apply for aid.

The listing also serves to illustrate how items with similar placement in the instrument tend to have similar rates of nonresponse. Examples are the items on the role of Aid Counselors, the set of questions on parental contributions to specific components of educational cost, and the questions on summer earnings. On the whole, this set of questions exhibits nonresponse rates that are worth noting, but it does not seem likely that these problems are serious enough to introduce major analytical difficulties.

E. Variables with heavy to severe nonresponse rates (more than 10.0 percent):

- -- if a BEOG award was adjusted, for those selected for verification (12.0%)
- -- specification of the type of "other" source of financial aid used, for those indicating such aid (13.0%)
- -- specification of "other" reasons for not applying for a GSL, for those indicating they had such reasons (13.4%)
- -- the set of reasons for not applying for a GSL, for those receiving any of five types of federal assistance (14.2%)
- -- current grade point average (14.4%)
- -- if student was selected for verification on Basic Grant information, for recipients of federal assistance (14.9%)
- -- if student's Basic Grant application was rejected, for those seeking a BEOG (15.5%)
- -- specification of "other" sources of financial aid forms, for those indicating such sources (16.4%)
- -- number of hours spent to obtain BEOG verification data, for those requested to supply it (17.3%)
- -- if student attempted to obtain a GSL, for federal aid recipients (19.4%)
- -- if student was awarded an NDSL loan, for federal aid recipients (22.9%)
- -- specification of "other" kinds of third-party persons helping students to fill out aid application forms, for those indicating they received such help (25.6%)
- -- specification of "other" types of aid application forms used, for those indicating they used such others (27.0%)
- -- reasons why rejected BEOG applicants stayed rejected (or became ineligible; applicable cases only; 30.3%)
- -- the set of reasons for not receiving a GSL, for those applying for one (33.7%)
- -- student's deadline for aid award decisions; month (39.3%)
- -- student's deadline for aid award decisions: day (48.5%)

-- specification of "other" reasons for submitted corrected or supplemental beog applications, for those indicating they had such reasons (50.0%)
-- amount of GSL loan (see text; 55.4%)
-- additional reasons why rejected Basic Grant applicants stayed rejected (see text; 94.9%)

This final set of items from the student questionnaires includes a few variables with fairly severe rates of response. In general these variables appear toward the end of the instrument, deal with highly technical issues relating to loan procedures and Basic Grant application processes, and are filtered. For example, beginning with Question 35A in the instrument, only aid applicants are expected to complete the remaining items. This condition is clearly specified in Question 34A. Beginning with Question 36, only those who applied for at least one of five major Federal assistance programs must complete the form. Again this is specified in Questions 35A and B. Next, beginning with Question 40, only those receiving aid from one or more of these five Federal programs must respond. Again, this condition is defined earlier, but in this case the definition is indirect, not explicitly linked to the remaining items in the form---and, in fact, where comparable questions are repeated (as they are for both receipt of NDSL and GSL loans) the responses do not perfectly correspond. Still more problematic, there is a tacit filter for items 43A-45E, dealing with Basic Grants, so these items are included in the data file only for those applying for this form of aid, even though no overt filter appears on the form itself. The practical effect here is that nonresponse rates for the set of questions on BEOG rejection, verification, and corrected or supplemental applications may be mildly inflated by the presence of nonresponding cases which are actually inapplicable.

Even with this set of questions with heavy-to-severe missing value problems the nonresponse problem is not too serious. Only ten items have nonresponse rates over 20 percent, and of these, two relate to a single inquiry in the questionnaire that students clearly found to be difficult to understand (the question on the latest date when aid award information could be communicated without causing enrollment difficulties); a third item was not asked in writing in the case of on-site respondents, vastly increasing the opportunity for nonresponse (the question on the amount of GSL loans); and a fourth item *should* have high NA rates since it consists solely of *additional* reasons cited by some students as further explanations for their inability to obtain BEOG eligibility.

Several of the remaining severe nonresponse situations are substantively minor, entailing only a failure to spell out (in open-ended responses) the precise nature of "other--please specify" responses. In some cases it is not difficult to judge why a student might pass over these details. Students might not recall which "other" forms they used to apply for aid; they might not know *why* a corrected or supplemental BEOG application was submitted even when they did so, especially if an Aid Counselor was involved in the decision. They also might not know why they had been rejected for a GSL. For all of these cases, a "Don't Know" response inserted in the instrument might have clarified the nature of nonresponse, and in the absence of such a code, we feel it is reasonable to suggest that some of these nonresponding cases simply had no basis on which to reply to the question. If this is in fact the case, nonresponse presents no problem of bias.

This completes the ranking of nonresponse situations for the student questionnaire. On the whole, item nonresponse does not seem to present serious difficulties for the survey. A few selected items should be treated with caution. Virtually all of the variables with heavy-to-severe rates of nonresponse are filtered, so that in any event only a portion of the total pool of respondents is affected. In other cases, nonresponse can be explained by legitimacy of the condition (for example, it is not unreasonable to have a 14.4% nonresponse rate for current GPA, given that some students would not yet have received grades; and we have commented in the previous paragraph on the other kinds of "Don't Know" conditions that could be mixed in with true failures to respond).

4.4: Item Nonresponse: The Record Review Form

The ranking presented below bears a superficial resemblance to the data discussed in Section 4.3, above, on student questionnaires. However, the substantive implications for item nonresponse are completely different in this case. Here there is no question of respondent misunderstanding or reluctance to supply data. There are, however, sharp differences from one school to the next in the quantity and quality of data maintained in financial aid files. Some schools also exhibit considerable internal inconsistency, with one file quite complete, while the next may be nearly empty. Item nonresponse in this case reflects the availability of information in the financial aid office.

A. Variables where nonresponse is undefined:

- source codes for income items under the student's academic budget
- "other--specify" (type) codes and source codes for "other" types of financial aid received
- the set of items dealing with various documents used to verify 1978-79 BEOG applications

All of these items are contingent on other responses. The source code for income items refer to a checklist added to the survey schedule at the request of the Office of Management and Budget (OMB) to denote whether information on selected sources of money to meet a student's budget comes from a highly valid source (the IRS 1040 tax form), a fairly valid one (the Student Eligibility Report or SER used in the Basic Grant program), or some other source (e.g., need-analysis form). IRS 1040's are an impossible source for a number of the income items: nontaxable income, elementary/secondary tuition costs, total assets, and monthly veteran's and social security benefits. Only the fact of utilization of a source document was coded; nonutilization is lumped with no answer (no data) codes.

The types of "other" sources of financial aid specified on the form serve as identifiers for the dollar responses recorded for such support in the general question dealing with the total aid package a student received. The nonresponse rates for the primary variables--the dollar amounts of "other" aid--are in the "moderate" range, below. There are 95 possible codes used to describe these "other sources" of financial aid--private grants, company scholarships, various State-specific programs, and so on. Up to four "other" types of aid were recorded. The "source" codes are a more general set of identifiers, and classify each specific type of "other" aid encountered in this study into broad categories (e.g., "state grant," "need-based institutional grant," "ability-based grant," etc.). It should be noted that 56 percent of the aid recipients covered by these data report at least one form of "other" assistance; 19 percent report a second "other" form of help; five percent report a third; only one percent report a fourth.

The set of verification documents is a multiple-response item applicable only to those selected for data verification of their BEOG applications (386 cases). For analytical purposes, cases where no document was checked should be taken as a "no verification document in file" group. Like the source codes for income variables, this set of questions was added to the survey schedule by OMB.

B. Variables where the nonresponse rate is negligible to low:

-- student status: current aid recipient, applicant only, withdrawn student (0.3%)

-- specification of "other" major fields, for those with such majors (0.5%)

-- if SER includes edit reject messages, for those with a SER (0.6%)

-- if a SER is in the student's file (1.3%)

-- if SER was selected for data verification, for those with a SER (1.7%)

These items reflect ambiguities and unresolved questions encountered during the record review searches as well as occasional coding errors in the field. The SER (Student Eligibility Reports for Basic Grant applicants) data are particularly prone to such problems because many schools do not keep copies of these reports in the student files; instead all SER's are filed together for convenience in preparing Federal

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reports. In such cases we treated the SER as if it was physically a part of the file (because it was readily available to the Financial Aid office), but it was not always possible to gain physical access to the document itself (some were in use while the record reviews were being taken; in such cases the record was left blank to allow for later attempts to pick up the missing information, insofar as time would permit).

C. Variables with low to moderate nonresponse rates (2.0 to 5.0 percent of applicables):

- specification of "other" class status, for those with such statuses (2.8%)
- BEOG aid received (2.9%)
- SEOG aid received (3.2%)
- CWS aid received (3.3%)
- NDSL aid received (3.9%)
- residence, for tuition purposes (4.0%)
- sex (4.2%)
- first other type of aid received (4.2%)
- GSL aid received (4.7%)

These items, with the exception of the specification of the "other" class statuses, are all primary (unfiltered) variables and reflect the fact that files may be sufficiently disorganized in some cases to make it impossible to determine even these kinds of basic facts about aid recipients. Missing values for these fields may reflect contradictory situations (such as the presence of a school record indicating that an applicant's Basic Grant has been held up pending resolution of some problem), as well as the simple inability to access a file because it was in use at the time of the review.

The nonresponses for residence reflect only those cases where residence would affect charges but no residency data were available; if charges did not depend on tuition, all cases in a school could be automatically coded on the item. The nonresponses for sex reflect the fact that many schools do not keep track of this variable. Sex was, however, coded automatically at all known single-sex schools, whether formally recorded by the financial aid office or not.

All of the data on forms of aid received by students treat zero as a valid code; that is the nonresponses include only those whose use of a form is unknown, and if student is known not to have received, say, a CWS job, then the CWS line in the list of types of aid is coded as zero. The results for BEOG, SEOG, and GSL aid include a few grants or loans that, according to the records, exceed program limits. These were retained in the file because it is possible that some students may have obtained aid from two separate fiscal periods during the academic period covered by the study, especially in proprietary schools that may not follow traditional calendars. This could lead to totals that exceed the limits. It is also possible that some campus-based awards have exceeded these limits without being caught and corrected.

D. Variables with moderate to heavy nonresponse rates (5.1 to 10.0 percent of applicables):

- second other type of aid received (5.1%)
- third other type of aid received (5.6%)
- fourth other type of aid received (5.8%)
- student assets (6.6%)
- summer earnings (6.6%)
- academic year earnings (6.6%)
- spouse's contribution (6.9%)
- year of birth (7.7%)
- class status (7.7%)
- specification of "other" contributions to the student budget, for those with such contributions (7.8%)
- student's nine-month academic budget (9.6%)
- if student has a CWS job (9.7%)

The same observations made for the previous set of items also apply here. For all of the dollar items, positive knowledge of non-use of a form of aid or of a type of income source is coded as zero rather than as an a missing value. The only excluded codes are ambiguous cases where files simply did not permit a reasoned judgment to be made. The figures for total student nine-month budgets include a few cases with very high (to the point of dubious plausibility) values--over $20,000 for the period. The results for such variables as year of birth and class standing reflect the fact that some schools do not keep these data in aid files; in the case of CWS jobs, some files were ambiguous.

E. Variables with heavy to severe nonresponse rates (more than 10.0 percent):

- dependency status (10.5%)
- marital status (12.7%)
- other contributions to the student budget (13.2%)
- adjusted gross income (13.5%)
- parental contributions (14.1%)
- enrollment status (14.5%)
- nontaxable income (15.9%)
- federal taxes paid (16.3%))
- medical expenses (16.5%)
- casualty/theft losses (16.8%)
- social security benefits (17.2%)
- veteran's benefits (17.3%)
- household size (17.6%)
- contribution of second earners (17.9%)
- elementary/secondary tuition costs (18.2%)
- number of persons enrolled in postsecondary education programs (18.7%)
- total assets (19.1%)
- current living arrangement (20.5%)
- SEI (BEOG eligibility index--20.6%)
- full time/part time (29.2%)
- credit hours/clock hours (31.4%)
- major field (34.8%)
- race (49.3%)
- credit or clock hours (59.3%)

- -- current grades (72.3%)
- -- high school rank (87.1%)
- -- SAT math score (91.2%)
- -- SAT verbal score (91.3%)
- -- ACT total score (94.5%)
- -- ACT English score (94.9%)
- -- ACT social studies score (95.1%)
- -- ACT math score (95.1%)
- -- ACT science score (95.3%)

Up to this point, the items in the record review files have not exhibited very serious missing value problems; those that have been noted are primarily attributed to problems with disorganized filing systems or to simply lack of access to data (for student folders in use at the time the reviews were done). In this final, and longest set of items, however, a different type of issue presents itself: the clear tendency for most financial aid offices not to keep certain kinds of data. This shows most clearly for the scholastic ability test scores (SAT and ACT variables). The data that were gathered were obtained separately in most cases from admissions offices; virtually no aid office keeps such data, especially in the case of upperclass students. Occasionally test data could be picked up where it appeared in handwritten notes entered in a file; typically such cases involved freshmen or other first-time students.

High school class rank is another admissions variable that is not retained by virtually any aid offices. Other data typically not maintained by financial aid operations are the items on current grades, major field, and credit or clock hours attempted, which are maintained by registrars. Again, where data were obtained it was often by virtue of extra efforts by field teams to pick up these kinds of information from other sources.

This leaves race as the remaining item with more than a 35 percent nonresponse rate; again, data on race is simply not kept, often as a matter of deliberate policy. Frequently race data were coded from separate information schedules maintained by schools (such as local aid application forms) which made the provision of these data by students a strictly voluntary matter.

The remaining items in the list are more like those discussed in previous sections. Again, some schools keep virtually no data on aid recipients (for example, schools on the Alternative Disbursement System for Basic Grants). Some institutions use extremely awkward filing systems with separate files for student background data, another file for all those receiving a BEOG, another file for those receiving institutional aid, another file for those with CWS jobs, etc. Our inability to cover all such sources and compare them led to some lack of data, and contradictions between such multiple sources led to others. Another way that cases could be included with large amounts of missing data was for students to receive only a local non-need-based award, in which case the aid "file" typically consisted only of a name and a note to the effect that he or she was the recipient of a grant.

Another common problem is that schools may use ambiguous classification schemes for the data they do keep. A good illustration is coding of marital status. Virtually all schools keep track of this but typically they use the designation "single" as opposed to the considerably more specific "never married," "divorced/separated," etc. The Applied Management Sciences' record review form used the more precise coding but in many cases this had to be abandoned in the field because source documents did not contain information at this level. In such cases, the never married code was used.

With all of these provisos in mind, our general conclusion is that yield for the record reviews is probably acceptable insofar as the data seem to reasonably reflect what information is available in the files of aid offices. However those files are themselves sufficiently incomplete to make them of limited utility as sources for many data elements and variables of interest for this study. In particular, such files are unlikely to contain much information on those receiving only non-need-based scholarships or Guaranteed Student loans, or on students in general at schools with little aid resources other than BEOG grants distributed via the ADS system. On the other hand, the record review data do include a considerable amount of detailed financial and award information available nowhere else for students with need-based awards, and where these data are based on materials like a SER, a copy of the CSS/FAF application (the most common "other" source of this information), or--less frequently--an IRS 1040, the record reviews are probably more accurate than similar information obtained directly from students but not subjected to any external reviews or validation. The overall implication for the survey is that while the record reviews are probably the best source of data on financial aid, they are probably less preferable as the primary data source for information on the major student characteristics provided by the questionnaires. Of course, for some cases--those aid recipients who did not cooperate with the student survey--the record reviews are our only source of information.

5

PREPARATION OF POPULATION ESTIMATES FROM THE NATIONAL SAMPLE

5.1: Introduction

This chapter describes how the population estimates (i.e. totals and proportions) were prepared from the data collected during the site visit survey. As such, this section of the report addresses several distinct processes that are included in the transformation of raw survey data into population characteristics. These are:

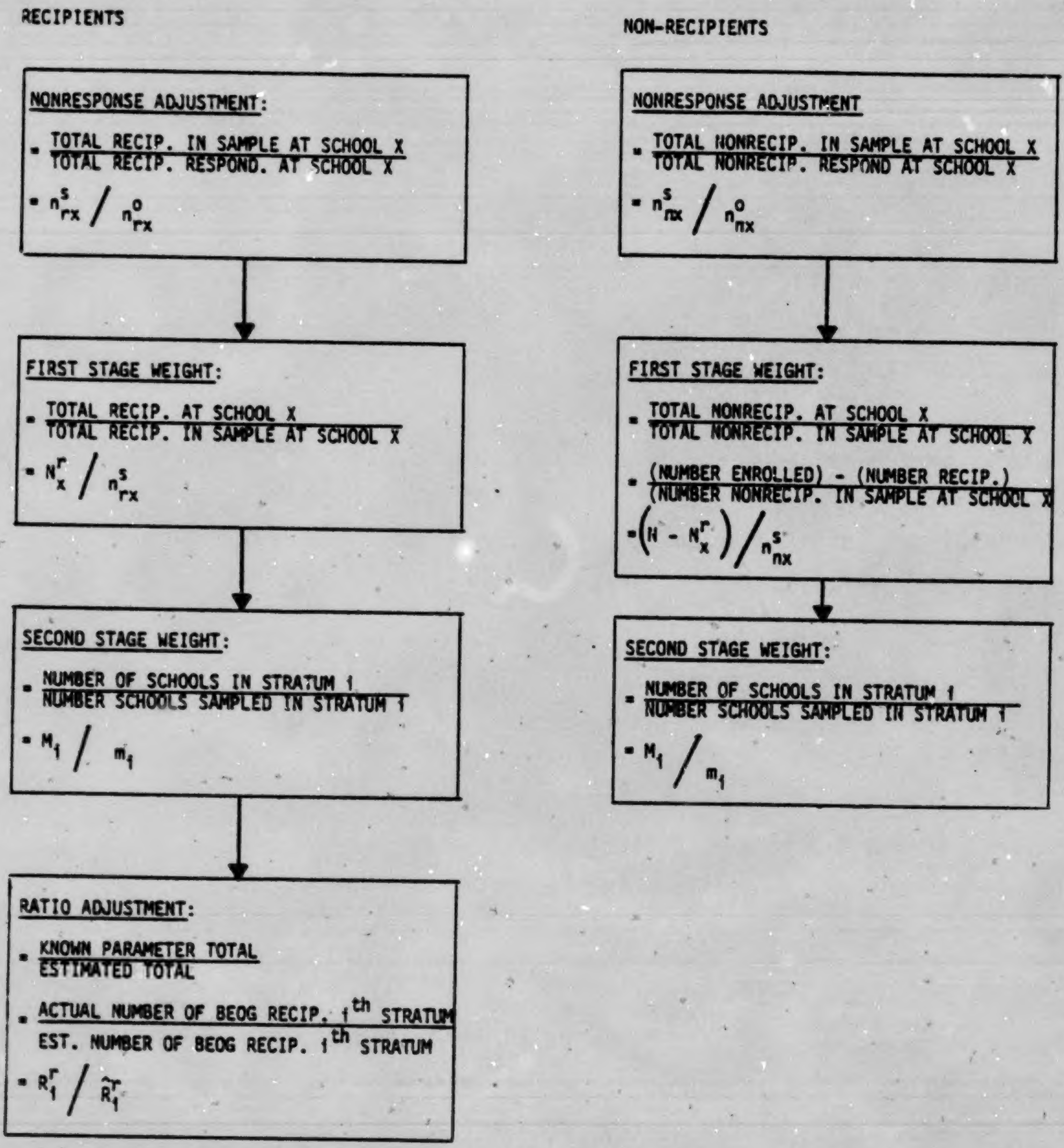
- preparation of simple unbiased estimates;
- adjustments for nonresponse;
- preparation of ratio estimates based on known population parameters; and
- preparation of final composite estimates.

The sequence of estimation procedures is depicted in Exhibit 5.1. Each step is also described in detail in the remaining sections of this chapter.

5.2: Preparation of Unbiased Estimates

The importance of the ability to prepare simple unbiased estimates from survey data is great even though the estimates finally derived may be of a totally different type. Simple unbiased estimates have the property that their expected or mean value for repeated samples is equal to the value that would be obtained by applying the same data collection procedures to the entire survey population; they can be made only when probability samples are used. Any one of the other estimation steps

EXHIBIT 5.1: SURVEY WEIGHTING PROCEDURES



RECIPIENTS

NONRESPONSE ADJUSTMENT:

$= \frac{\text{TOTAL RECIP. IN SAMPLE AT SCHOOL X}}{\text{TOTAL RECIP. RESPOND. AT SCHOOL X}}$

$= n^s_{rx} \Big/ n^o_{rx}$

FIRST STAGE WEIGHT:

$= \frac{\text{TOTAL RECIP. AT SCHOOL X}}{\text{TOTAL RECIP. IN SAMPLE AT SCHOOL X}}$

$= N^r_x \Big/ n^s_{rx}$

SECOND STAGE WEIGHT:

$= \frac{\text{NUMBER OF SCHOOLS IN STRATUM i}}{\text{NUMBER SCHOOLS SAMPLED IN STRATUM i}}$

$= M_i \Big/ m_i$

RATIO ADJUSTMENT:

$= \frac{\text{KNOWN PARAMETER TOTAL}}{\text{ESTIMATED TOTAL}}$

$= \frac{\text{ACTUAL NUMBER OF BEOG RECIP. } i^{th} \text{ STRATUM}}{\text{EST. NUMBER OF BEOG RECIP. } i^{th} \text{ STRATUM}}$

$= R^r_i \Big/ \hat{R}^r_i$

NON-RECIPIENTS

NONRESPONSE ADJUSTMENT

$= \frac{\text{TOTAL NONRECIP. IN SAMPLE AT SCHOOL X}}{\text{TOTAL NONRECIP. RESPOND AT SCHOOL X}}$

$= n^s_{nx} \Big/ n^o_{nx}$

FIRST STAGE WEIGHT:

$= \frac{\text{TOTAL NONRECIP. AT SCHOOL X}}{\text{TOTAL NONRECIP. IN SAMPLE AT SCHOOL X}}$

$= \frac{\text{(NUMBER ENROLLED) - (NUMBER RECIP.)}}{\text{(NUMBER NONRECIP. IN SAMPLE AT SCHOOL X}}$

$= \left(N - N^r_x\right) \Big/ n^s_{nx}$

SECOND STAGE WEIGHT:

$= \frac{\text{NUMBER OF SCHOOLS IN STRATUM i}}{\text{NUMBER SCHOOLS SAMPLED IN STRATUM i}}$

$= M_i \Big/ m_i$

$$W_{gt_R} = \left(\frac{n^s_{rx}}{n_{rx}}\right)\left(\frac{N^r_x}{n^s_{rx}}\right)\left(\frac{M_i}{m_i}\right)\left(\frac{\hat{R}^r_i}{\hat{R}^r_i}\right)$$

$$W_{gt_N} = \left(\frac{n^s_{nx}}{n_{nx}}\right)\left(\frac{N-N^r_x}{n^s_{nx}}\right)\left(\frac{M_i}{m_i}\right)$$

described here could be (and most of them frequently are) applied to a non-probability sample. One could for example, obtain student aid recipient data from a sample of individuals chosen by any convenient (i.e., non-probability) method, classify them by certain key characteristics such as class, age, school, type, etc. and make population estimates by applying the proportion in the sample having some characteristic to an independently derived estimate of the total population in that group. On the surface, this process resembles that used for probability samples, however, no amount of adjustment and refinement of data from a non-probability sample can obscure the two basic weaknesses of the resulting estimates; i.e., they are subject to unknown biases, and a non-probability sample does not provide any basis for an objective evaluation of its precision.[1]

A simple unbiased estimate of the population total, for any characteristic investigated in the survey, may be made by multiplying the value of that characteristic for each sample unit--students or schools--by the reciprocal of the probability with which that unit was selected and summing the products over all units in the sample. Strictly speaking, this would give an estimate of the population total only for the units responding; adjustments for noncoverage would have to be made to complete for any losses that occurred. These are described in Section 5.3.

The design used in this survey is non-self weighting, that is, all units in the sample did not have the same probability of selection. Therefore, in order to derive simple unbiased estimates, separate weights had to be calculated for each student consisting of two parts: a first-stage or school weight which is the reciprocal of the probability of selecting students within individual institutions; and a second-stage or stratum weight which is the reciprocal of the probability of selecting individual institutions within strata. This procedure was done separately for aid recipients and non-recipients. The preparation of separately for aid recipients and non-recipients. The preparation of simple unbiased estimates, then, was made, for each group, by multiplying sample totals by the product of these two weights:

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[1] Hansen, Morris H., Hurwitz, William N., and Madow, William G. Sample Survey Methods and Theory, Vol. I, New York: John Wiley and Sons, 1953, Chapter 2.

$$\text{Basic Recipient Weight} = \frac{\text{(Total Number of Recipients in School X)}}{\text{(Total Number of Recipients Sampled at School X)}} = \frac{N_x^r}{n_{rx}^s}$$

$$\text{Basic Nonrecipient Weight} = \frac{\text{(Total Number of Nonrecipients at School X)}}{\text{(Total Number of Nonrecipients Sampled at School X)}} = \frac{N_x^n}{n_{nx}^s}$$

This, however, did not complete the weighting of the data - adjustments for noncoverage and for certain design effects were still required.

5.3: Adjustments for Nonresponse

Coverage errors (see Chapter 6 for a complete discussion of error and bias) result either from the failure to obtain data from certain segments of the eligible survey population or from the inadvertant inclusion of ineligible units. For the former type, Kish[2/] distinguishes two sources: nonresponse and noncoverage. Nonresponse refers to the failure to obtain observations on some elements selected and designated for the sample; it may be due to refusals, "not-at-home", unreturned or lost questionnaires, etc. On the other hand, noncoverage denotes failure to include some units, or entire sections, of the defined survey population in the actual operational sampling frame. Such units, therefore, have an unplanned and zero probability of selection; they are in effect excluded from the survey result. We do not refer here to any deliberate and explicit exclusion of sections of a larger population from the survey population. Survey objectives and practical difficulties determine such deliberate exclusions. For example, in this study graduate students were intentially excluded. These explicit exclusions differ both in intent and in result from noncoverage.

[2/] Kish, Leslie, Survey Sampling, New York: John Wiley and Sons, 1965, p 527.

Coverage errors are, therefore, of three basic types:

- type A, incomplete frames - unintentional omissions that occur in preparing the sampling frame;
- type B, nonresponse - omissions due to faulty execution of survey procedures; and
- type C, overcoverage - the inclusion of sampling units that do not belong there.

While in most surveys noncoverage is more of a problem than overcoverage, ill-defined sampling populations can lead to serious problems of overcoverage. The net level of noncoverage, however, can be acceptable if the effects of overcoverage are in part cancelled out by the effects of noncoverage, i.e., if the erroneously included observations are like those erroneously excluded. This is further discussed in Chapter 6.

A. Type A Noncoverage - Incomplete Sampling Frame

During the course of this survey, noncoverage losses resulting from an incomplete sampling frame could have occurred at two points in the selection process - the choice of postsecondary institutions and the sampling of students. In both cases, the difficulty stems from our inability to completely enumerate every unit eligible by virture of the selected population definition prior to drawing the desired samples. When dealing with populations such as those examined in this study, there exists an inevitable degree of missed eligible respondents.

With regard to the selection of postsecondary institutions, the sampling frame (as discussed in Chapter 2) was constructed using various data files available from the U.S. Office of Education. While these represented the best possible sources, their use entailed two types of Type A Noncoverage:

1) Whereas the study was conducted during the 1978-79 school year, the most current data available to select the institutional sample was for 1977-78. Since some schools may have closed and others may have been added during the ensuing year, we lack any specific indications of the net effect on the sample. We have, therefore, assumed that it is zero, i.e., the changes have balanced out.

2) Second, the use of these files resulted in some degree of misclassification, i.e., nearly one-fourth of the institutions were found to have incorrect data recorded on level and control. Although extensive efforts were undertaken, in conjunction with the American Council on Education, to correct these data some errors are sure to have gone undetected. Therefore, since the stratum totals may be somewhat in error the weights derived from these totals may be slightly biased. While this does not effect estimates of population totals, it may have a slight effect upon the relative distributions among strata.

Despite the fact that we lack an objective measure of the net effect of these noncoverage problems, we believe it to be minimal. Moreover, the effect is only upon the relative distribution among population subclasses.

Once the sample of institutions was selected, responsibility for further sampling passed to designated institutional personnel. As such, it was subjected to the limitations of both institutional recordkeeping and individual ability. While efforts were made to minimize these problems (through extensive interactions between Applied Management Sciences and school personnel), our communications with the schools have indicated the potential for a significant noncoverage of eligible students (overcoverage is discussed in Section C, below). That is, the lists used to select the samples (usually a Registrar's roster of students in attendance) were, more often than not, incomplete. Potentially eligible students were excluded simply by reason of their not appearing on the Registrar's list at the time the sample was selected.

Although we again lack an objective measure of the magnitude of the noncoverage, all indications are that there has been some underepresentation of students, especially nonrecipients of financial aid (i.e. better records are maintained for aid recipients). The result is a tendency toward conservative estimates except where aid recipients are examined as a proportion of all students - in these cases, there is a slight inflation of the estimates.

B. Type B Noncoverage - Nonresponse

Of the two types of noninterview discussed above, only the type B represents observations that were eligible for the survey. For the purposes of this discussion, this type of noninterview, called nonresponse, refers to the failure to obtain usable responses from an eligible unit. It should not be confused with another element of response error arising from incomplete or inaccurate reply to a given question on the survey instrument, called item nonresponse, which was covered in Chapter 4. The following discussion presents the extent of this noncoverage, its likely causes, and procedures used to adjust the data for the resulting loss.

With regard to institutions, any discussion of the extent of nonresponse must take note of the way in which sampling was performed. Participation in this study, as discussed in Chapter 2, was voluntary; even though the selection of schools was randomized we had no way of ensuring their inclusion. It was, however, important that for the purposes of analysis the number of eventual participants be equal to the size of the desired sample. Therefore, the approach which was taken was to keep selecting random replacements for schools that declined to participate. A total of 207 schools were contacted and 172 agreed to participate. The eventual response rate, then, of 83 percent is really a reflection of our success in inducing schools to take part in this study - it is not a measure of the yield of the survey.

The nonresponse rate for students, on the other hand, does measure the yield of the survey procedures as well as the degree of noncoverage for the selected sample. These results are presented below in Exhibit 5.2 for both survey instruments and for aid recipients and nonrecipients.

In terms of the data abstracted from student financial aid files, a record exists for every student identified by the institutions as an aid recipient during the course of the selection process. With regard to the student survey, the degree of nonresponse, while quite good for only two attempts at contact, is considerable. However, when adjusted for a known rate of overcoverage (i.e. ineligibles included in the sampling frame) and procedural exclusion (i.e. those students for whom the institutions provided incorrect addresses and were thereby unreachable) the resulting response rate of 72.4 percent is within the range of standard survey acceptability.

EXHIBIT 5.2: STUDENT SURVEY RESPONSE AND COMPLETION RATES

	Student Status			
Survey Results	Aid Recipient	Non-Recipient	Withdrawn	Total (Less Withdrawn)
Total Sample Sizes	11,515	7,872	927	19,387
Record Review Forms:				
Number Completed	11,515		927	11,515
Percent Completed	(100%)	N/A	(100%)	(100%)
Student Questionnaires:				
Number Completed	7,735	4,697	N/A	12,432
Percent Completed	(67.2%)	(59.7%)		(64.2%)
Estimated Response Rate1/	(73.2%)	(71.1%)		(72.4%)

1/The response rate is the ratio of the number of eligible students who could have responded (see Section C for a more complete discussion) to the total number of responses received. The latter part is the actual number of completions while the former has been estimated using data obtained through a telephone survey of nonrespondents and from counts maintained of questionnaires returned by the Postal Service. First the size of the group of nonresponding recipients and nonrecipients (6,955) was reduced by 25 percent to 5,216 to reflect the proportion of students who were, in fact, unreachable by mail. Next, the size of the group of remaining nonresponding nonrecipients (2,381) was reduced by 20 percent to 1,905 to reflect the proportion of such students who were truly eligible to participate in the study. These reduced bases were then used to compute the estimated response rates.

Turning to the likely causes of the apparent nonresponse, one must realize that some noninterview is virtually certain to occur in any study of a human population. In fact, concern for the threat to validity of respondent unwillingness to participate in a survey has become an area of particular concern to researchers as well as those who sponsor such projects.[3] In general, this concern is based on varied empirical data which seem to include a declining propensity to respond. The burdensomeness of survey instruments, skepticism about the utility of the research, and issues of privacy have been suggested as the major reasons for the hypothesized increase in respondent resistance (see in particular Marquis, 1977, Goldfield, et al. 1977, Bailar and Lanphier, 1978, Sinaiko and Broedling 1976).[4] However, as concluded by Sosdian and Sharp:

> But we suspect that survey professionals have been too eager to accept and internalize the notion of growing resistance to surveys and criticism of the survey approach on the basis of mostly anecdotal evidence. When researchers begin to look more systematically at their experiences in data gathering, they may find--as Marquis did for interview studies and as we did in the case of mail surveys--that technical and mundane issues, rather than fundamental changes in respondents' attitudes or behavior can explain a great deal about declining response rates or other problems which survey researchers encounter in their work.[5]

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[3] American Statistical Association, "Report on the ASA Conference on Surveys of Human Populations", 1974.

[4] Marquis, K.H., "Survey Response Rates: Some Trends, Causes and Correlates" (Background Paper). The Rand Corporation, Santa Monica, California, 1977; Goldfield, E.D., Turner, A.G., Cowan, C.D., and Scott, J.D. "Privacy and Confidentiality as Factors in Survey Response." Paper presented at the 137th Annual Meetings of the American Statistical Association, Chicago, Illinois, 1977; Bailar, B.H. and Lanphier, C.M. "Development of Survey Methods to Assess Survey Practices", American Statistical Association, Washington, D.C., 1978; and Sinaiko, H.W. and Broedling, L.A., Editors. Perspective on Attitude Assessment: Surveys and Their Alternatives. Pendleton Publications, Champaign, Illinois, 1976.

[5] Sosdian, C.P. and Laure M. Sharp, "Response Rates and Respondent Resistance", unpublished paper, 1979.

Based on an assessment of our site visit survey experiences we found several reasons, above and beyond any general tendency for increased suspicion of and/or disinterest in surveys, for the nonresponse problem. These are elaborated below.

A. Institutions: Participation in this study was, by regulation, purely voluntary. It also involved a considerable amount of effort on the part of the schools which was not totally offset by our payment of $100.00. Therefore, hesitancy to participate was not totally unexpected. Of the 207 schools contacted, 35 declined to participate:

.. Eight institutions felt they had reached a limit in the time they could devote to external audits, program reviews, surveys, and so on. At least two of these were major private universities which exhibited little interest in the project; in addition, complications were encountered at one of these two institutions because of internal requirements for faculty approval of any participation in outside research programs. Another of these institutions gave repeated assurances of interest, switched dates, and then took a firm negative stance. One school clearly did not want to participate in any local review of its operation. Other schools in this group appeared to have quite legitimate problems with multiple audits, program reviews scheduled for the same time period as the site work, and so on; in those cases their requests not to participate were accepted without debate.

.. Three schools, all contacted late in the study as part of the government's request to increase the number of four-year public schools in the sample, refused on the grounds that the request simply came too late, and at a bad time of year, so that the school would have to expend very substantial efforts to prepare for the site visit. All three had reasonable objections and were not pressed further.

.. Three schools asked not to participate for reasons essentially related to staff turnover: the Financial Aid Officer had just resigned, or was brand new. Other schools with recent staff turnover were willing to participate, however, so the project was still able to include schools where financial assistance staffing was inexperienced or nonexistent.

.. Four more schools dropped out after citing problems coping with the general burdens of the project. Two of these were very small proprietary schools with no designated Financial Aid Officer (similar schools did agree to participate, so such institutions are still included in the study).

Another was a large, multi-campus university with decentralized records and several separate locations for financial aid work so that not all parties could be freed up; for a site visit at the same time. A fourth case cited the study's burden as a reason to refuse, with no further explanation.

.. Four schools gave reasons for dropping out which the Applied Management Sciences study team viewed with skepticism. One pleaded medical advice: the site visit, we were told, had been judged dangerous to the Financial Aid Officer's health. Another cited a conflict in timing between the scheduled site visit and a regional NASFAA meeting, after several other schedule adjustments, and was later heard to have been charged with major irregularities by the auditors. Two state universities were totally uncooperative. In the one case, a Financial Aid Officer was unreachable, protected by at least two levels of secretaries; in the other, we were greeted from the start with such outspoken hostility that it was clear that the Aid Officer would do what he could to prevent a site visit.

.. Six schools were dropped by Applied Management Sciences. Two were dropped because their students would be unreachable (a maritime college's students were scheduled to be at sea for the entire period of field work; a national degree-granting school had its students decentralized across the entire country). In a third case, a college on the Bering Straits of Alaska was dropped rather than try to reach the site in the middle of the Artic winter. A fourth school turned out to be out of scope (a nursing school based in a hospital). The remaining two were dropped after it was learned that they had been sampled for another federally-sponsored financial aid study (further, a number of additional colleges were eliminated from the sampling frame for this reason, as noted above).

.. For the remaining seven cases, no particular reasons for non-cooperation were recorded; on the basis of recollections, we judge that these schools probably reflect the same patterns -- some inability to handle the burden, some simple disinterest, and some fear of a review -- that the other dropouts have displayed.

B. Students: As in the case of institutions, participation was voluntary. However, since we anticipated a greater reluctance to participate, students were offered $3.00 as an incentive to complete the questionnaire. Even so, the response was not total (detailed school by school response rates can be found in Appendix C). To begin with, the three dollar payment may not have been a sufficient incentive for students who would have to drive some distance and take as much as two hours' time (i.e., including round-trip travel) in order to complete a questionnaire. Also, one interviewer reported that phone calls to no-shows suggested that many students feared the project, evidently thinking that participation in the study might lead to the loss of Federal aid. In some cases, the weather alone accounted for much of the nonresponse. The first few weeks of the project were conducted in the midst of the blizzard of 1979, a storm that affected nearly the entire Eastern United States and which led to class closings in North Carolina and Northern Georgia as well as in Illinois, New York, and elsewhere. At a few schools, the student notification postcards were mailed very late. At larger urban institutions with many commuter students, it was simply impossible for some students to manage to appear at a predesignated time without skipping classes or taking time off from a part-time job. Parking problems alone would make it difficult for some students to come in for an interview at a time when they might not regularly be on campus. To meet such difficulties, sessions with students were often scheduled in the evenings, over lunch and dinner hours, and at more than one time and place. At two schools -- both church-related -- it was possible to get a "captive audience" by taking advantage of required chapels or other local practices. At some small proprietaries, all students could be covered by administering the survey in classes or by scheduling specific appointments with each respondent.

Although little could be done in the case of the institutions, a number of steps were taken to minimize the rate of student noninterviews. A mailed version of the student questionnaire was prepared and used to conduct a second request for participation from all initial on-site nonrespondents. It was assumed that many students would cooperate if they did not have to come to the campus for the interview, or if they were able to complete the form at a time of their own choosing. In fact, about as many students responded through the mail as were reached on-site. The same three-dollar payment was offered. In addition, the notification material was expanded from the rather terse note used for the original postcards, into a cover letter for the mailed instrument that stressed the large financial stakes at issue and the reasons why students might serve their own self-interest by cooperating. Furthermore, the assurances of privacy of student data were made much more explicit.

Having described the extent of, and likely causes for, the nonresponse problems which arose during this study (see Chapter 6 for a discussion of the bias introduced by nonresponse), the next step is to

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specify a method for adjusting the data for the occurrence of such noninterview. Unfortunately, as concluded by the Bureau of the Census, there does not currently exist, "...any unbiased or even consistent method of making adjustments for noninterview."[6] Therefore, they, and we, have opted for a procedure which treats disproportionate responses due to noninterview as equivalent to disproportionate sampling. That is, over- and under-represented groups are weighted to adjust for their over- and under-representation. The U.S. Bureau of the Census has reported that "the weights for all interviewed households are adjusted to the extent needed to account for units occupied by persons eligible for interview but for which no interview was obtained."[7] Specifically, this involves computing, within subgroups of recipients and nonrecipients, the following ratio:[8]

$$\frac{\text{(Number Interviewed)} + \text{(Number Noninterviewed)}}{\text{(Number Interviewed)}}$$

Moreover, to the extent that the returns of the rspondents are judged to be similar to those that would have been received from the nonrespondents the result will be relatively unbiased[9]. At this point, then, each record bears a weight reflecting the product of:

(Basic Weight) x (Nonresponse Adjustments).

Further, for each school all financial aid recipients carry the same weight while all nonrecipients carry a different weight.

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[6] United States Bureau of the Census. The Current Population Survey--A Report on Methodology: Technical Paper, GPO (1978), Washington, D.C., U.S. Government Printing Office, 1978, p. 57.

[7] United States Bureau of the Census, Concepts and Methods Used in Manpower Statistics from the Current Population Survey: Current Population Reports, Series P. 23, Number 22, June 1967, p. 13.

[8] United States Bureau of the Census, Op. Cit., p. 57.

[9] Fuller, Carol H., "Weighting to Adjust for Survey Nonresponse," Public Opinion Quarterly.

C. Type C Noncoverage - Overcoverage:

As noted by the American Statistical Association in 1974[10/] and more recently discussed by Bailar and Lanphier[11/] and by Kviz,[12/] survey researchers lack any standard definition of the term "response rate"; accordingly, the figure is frequently calculated in any one of numerous ways. Kviz, in particular, emphasized the distinction between "response rate" and "completion rate" where: 1) response rate is defined as the proportion of eligible potential respondents from whom a completed data set is obtained (i.e., completions/eligibles); and 2) completion rate is defined as the proportion of all potential respondents (i.e., completions/original sample). The latter can, as was shown in the previous section, be lower than the former especially when the selection process allowed ineligible respondents to enter the sample. Such a situation has been characteristic of this study and has led to a disparity between response and completion rates.

The student samples were selected by the individual participating institutions using procedures supplied by Applied Management Sciences. These procedures, in order to be effective, were dependent upon the use of a list of students who were eligible to participate in the survey (i.e., defined as currently attending undergraduate students who were enrolled half-time or better). Students were supposed to be arrayed, stratified by class level and then randomly selected within strata (see Appendix A for a copy of the sampling procedures employed). Unfortunately, it appears that for many institutions these procedures assumed a degree of accuracy that was beyond their current capability. Not only were some schools unable to stratify students by class but, more importantly, they were often unable

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[10/] American Statistical Association "Report on the ASA Conference on Surveys of Human Populations." The American Statistician, 1974, p. 28.

[11/] Bailar and Lanphier, op. cit.

[12/] Kviz, F.J., "Toward a Standard of Definition of Response Rate", Public Opinion Quarterly, 1977, 41:265-267.

to define a student population by the eligibility criteria we had established. Telephone calls to a sample of approximately 100 nonrespondents from both the on-site and mail versions of the student survey indicated that approximately 20 percent of the students selected in the sample were never enrolled at the institutions, or were enrolled only in years past (i.e., they had either graduated or dropped-out).

Furthermore, a careful examination of the respondents has indicated that over 300 of these were actually ineligible for the survey. Some were graduate students, some were enrolled for only one course, some were only auditing courses, and others were high school students who were enrolled in special programs. Clearly, a significant fraction of the original sample of students consisted of "false positives;" that is, individuals who do not appear to have been eligible to participate in the study (see Exhibit 5.2).

While we are confident in making the assertion that our sample has overcoverage problems, it is difficult to adjust the data in any unbiased manner so as to correct for this difficulty. To the extent possible, we have eliminated ineligibles from the respondent data set, but without conducting a more extensive survey of the nonrespondents it is impossible to construct accurate adjustment weights for overcoverage. The result, we believe, is an upward bias of the standard errors of the estimates.

5.4: Ratio Estimates

As noted by Hansen, et. al.[13/], the use of primary sampling units (PSUs) that vary widely in size may lead to a large variance if primary units are selected with equal probability and the estimate is a simple unbiased estimate. This is the case in the present study since PSUs (i.e., postsecondary institutions) do exhibit wide variations in both enrollment size and in the proportion of aid recipients. Moreover, the selection of these units was not proportional to a measure of size which would have controlled for such variation (see Chapter 2). In circumstances such as this, the recommended procedure is to apply a "ratio estimate" to reduce the contribution to the variance arising from sampling PSUs, i.e., the variance that would still be associated with the estimates if we included in the survey all eligible students in every sampled postsecondary institution.

Therefore, separate ratio adjustments were developed for each of the five major strata: public four-year institutions; public two-year institutions; private four-year institutions; private two-year institutions; and all proprietary institutions. Applying the ratio in this way is consistent although still technically biased, but the sample per cell is large enough and the number of cells is small enough, that the bias is negligible. The following description of the ratio indicates the computational procedure:

$$\frac{\text{1978-79 Known Number of BEOG Recipients in Stratum i}}{\text{Estimate of 1978-79 Number OF BEOG Recipients in Stratum i}}$$

This adjustment has been applied only to the records of aid recipients since similar independent estimates for nonrecipients are not currently available. An examination of the estimated totals, however, for all students (i.e., total enrollment by stratum) appears valid. The use of the Basic Grant figure as the known standard is due both to the reliability and availability of these data. Furthermore, checks of estimated totals for other Federal programs indicate that the use of this adjustment also improved the estimates for the other financial aid programs.

At this stage all weights have been applied. The records for each student, therefore, bears a weight reflecting the product of:

(Basic Weight) (Nonresponse Adjustment) (Ratio Estimate Factor)

The entire estimation procedure was depicted in Exhibit 5.1.

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[13] Hansen, et. al (1953), *op. cit*., Chapter 8.

6

ACCURACY AND PRECISION OF THE POPULATION ESTIMATES

6.1: Introduction

The terms accuracy and precision are widely used in the sampling literature to distinguish between two separate effects of bias. As Kish states:

> Precision generally refers to small variable errors; sometimes it denotes only the inverse of the sampling variance; in any case it excludes the effects of biases. Accuracy refers to small total errors, and includes the effects of biases. A precise design must have small variable errors; an accurate design must be precise and have zero or small bias. A survey design with a large bias is still precise if its variable errors are small, but not accurate.[1]

In some way, these terms are related to the concepts of "reliability" and "validity" commonly used in psychometrics.

Biases can have an important effect upon the total error of any survey; as discussed above, a precise design may be highly inaccurate if it has a large bias. As an example, consider Exhibit 6.1.[2] The normal curves represent the sampling distributions of estimates for each of four survey designs. The heights of the curves measure the probability of varying values of estimates. Variable errors correspond to the standard deviations of the curves, and biases to the distance from

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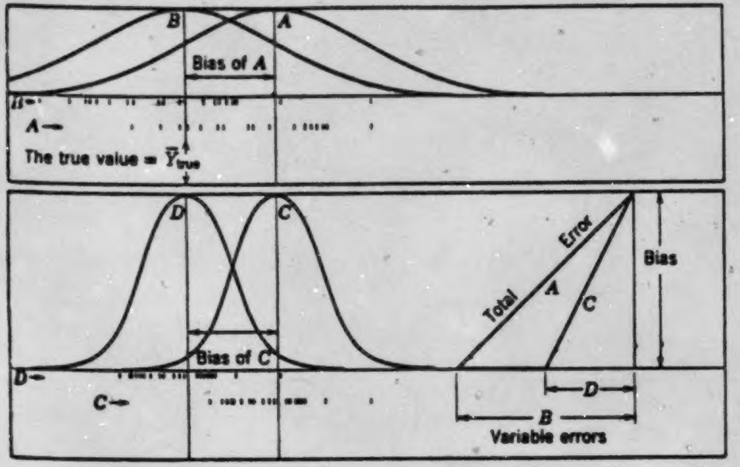
[1] Kish, Leslie, Survey Sampling, John Wiley and Sons, New York, 1965, p. 510.

[2] Source: Kish, Leslie, op. cit., p. 511.

EXHIBIT 6.1: RELATIONSHIP OF BIAS TO VARIABLE ERROR



Source: Kish, Leslie, Survey Sampling.

the curves' centers to the true values, Y_{true}. Designs A and C exhibit large biases, whereas B and D appear unbiased. Designs C and D are more precise, because they have smaller standard errors, than designs A and B. Of the four, only design D is accurate, because both its variable error and its bias are small. On the contrary, curve A exhibits the greatest average distance from the true value.

On the right triangles, the heights represent bias and the bases represent variable errors. The hypotenuses A and C measure total errors, combining a similar bias with large and small variable errors, respectively. The effects of eliminating bias appear in the total errors of B and D, equal to their variable errors, the horizontal sides. The total error for C remains large despite its smaller variable error. Only D has a small total error, combining low values for both variable error and bias.

As a result, statements about some true population value $\overline{Y}_{True}$ within intervals based on the standard error (i.e., a measure of precision), exclusive of the effects of bias, underestimates the total errors of the survey and result in greater errors than suspected.[3] Alternatively, inferences are made from the sample value $\overline{y}$ to the population value $\overline{Y}$ thereby yielding results that are essentially free of bias since $\overline{y}$ is conceived as taken under the same essential survey conditions. In this way,the problems of estimating the effect of biases are separated from estimates of sampling errors, of which the latter "can be measured with greater accuracy and objectivity."[4] This does not, however, eliminate the need to estimate the magnitude of the biases. The following two sections address each of these two issues - accuracy and precision - for the results of the site visit survey while the last section deals with how these two sources of error combine into the overall mean square error of the estimates.

6.2: Accuracy of the Estimates

The accuracy of a given estimate for a characteristic, as discussed above, is measured by the expected size of the difference between the estimate and the true value of the characteristic in the population of interest. Whereas measures of precision (reliability) are relatively easy to calculate, accuracy (bias or validity) is quite difficult to assess. The measures of precision are entirely objective since they are computed from the sample itself. The measurement of bias, on the other hand, requires some knowledge or assumptions about the truth of what is being measured that go beyond data from the sample survey.

a) The Concept of Bias

As will be discussed more fully in Section 6.3 the precision of an estimate "measures how much the value of any particular estimate is likely to differ from the average or expected value of all possible estimates that could result for samples selected and surveyed under the same basic conditions."[5/] Bias measures how much this estimate differs from the true population value, i.e., if it corresponds to the true value, the estimate is unbiased and valid. As the amount of the bias increases, the overall accuracy of the estimates decreases; however, as long as the bias is small relative to the standard error (i.e., the sampling error) the accuracy of the estimate will remain generally insensitive to the size of the bias. Similarly, where bias is large relative to the standard error, the accuracy will be very sensitive to the magnitude of the bias. This is further discussed in Section 6.4.

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[3] Kish, Leslie, op. cit., p. 512.

[4] Kish, L., op. cit., p. 512.

Finally, bias has direction as well as size - a positive bias means the expected value is larger than the true population value while a negative bias means that it is smaller than the true population value. The effect of all sources of bias (i.e., net bias) is equal to their sum taking into account the signs. Therefore, a small positive bias can partially offset a large negative bias:

> An individual source of bias for a given estimate will, if it goes contrary to the general direction of bias error, work toward improving the given estimate. The total effect of all biases, however, regardless of whether the net bias is positive or negative, can only add to total mean square error, thus, decreasing the overall accuracy of the estimate.[6/]

b) Sources of Error

Kish[7/] notes seven distinct sources of survey bias (see Exhibit 6.2):

- Sampling biases - these are of two types:
  - Frame biases, are caused by errors in selection and/or weighting procedures, e.g., failure to adjust the estimate for unequal selection probabilities; and

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[5/] Bureau of the Census, The Current Population Survey: Design and Methodology, 1978, p. 81.

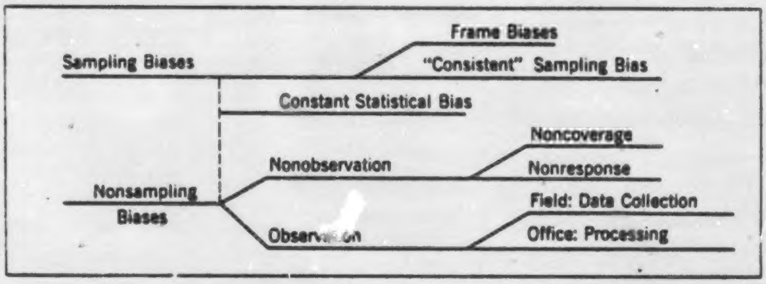
[6/] Bureau of the Census, op. cit., p. 82.

[7/] Kish, L., op. cit., pp. 519-524.

    - Consistent sampling biases, are related to the choice of a population estimator and are such that they decrease with increasing sample sizes (e.g., using $r = y/x$ as an estimate of $R = Y/X$).

- Constant statistical bias - these are also related to the choice of an estimator, however, unlike consistent bias these are unaffected by the selected sample size (e.g., using the median to estimate the mean of a skewed distribution).
- Nonsampling biases - are of two broad types:
    - nonobservation biases - the failure to obtain data from some segments of the population due either to noncoverage (an incomplete frame) or nonresponse;
    - observation biases - these are a result of obtaining and recording observations incorrectly due either to field errors (e.g., response biases) or processing errors (e.g., coding, keypunching, tabulating, etc.).

EXHIBIT 6.2: THE CLASSIFICATION OF SOURCES OF SURVEY BIASES


Frame Biases
Sampling Biases
"Consistent" Sampling Bias
Constant Statistical Bias
Noncoverage
Nonobservation
Nonresponse
Nonsampling Biases
Field: Data Collection
Observation
Office: Processing

Source: Kish, Leslie, Survey Sampling.

While substantial effort was expended to minimize the impact of biases both in the sample design and survey processes, these efforts were not, or could ever be, always totally successful. The following dicussion describes such circumstances.

c) Potential biases in the student survey data: sampling biases

As was briefly discussed in Chapter 5, the design of this survey resulted in a number of biases which can be largely attributed to our development and use of a particular sampling framework. These are elaborated upon below:

1) Selection of institutions - The use of 1977-78 data to construct the institutional sample entailed problems with both noncoverage and overcoverage; we believe, however, that these difficulties have resulted in a zero net bias. On the other hand, the voluntary nature of this project has probably resulted in the introduction of some small bias. Even though random replacements were selected, it seems unlikely to assume that a perfect matching was thereby achieved. That some bias exists, however, is about all that can be assumed--the direction of the bias is not clear and we lack the ability to derive a quantitative measure of the apparent difference. From a qualitative perspective, participating institutions, at least on the surface, appear to be not much different from those declining to participate. Staffing problems, inadequate management systems, involvement with audits, etc. were evidenced in both categories as were also many positive attributes. If differences do exist, they are not striking.

2) Selection of students - Errors related either to the nonintentional exclusion of eligible respondents or the inclusion of ineligible respondents are related primarily to the selection of students at the sampled postsecondary institutions. Schools simply do not keep perfectly accurate lists of students and this was further exacerbated by our criterion of "students attending half-time or better." As a result, at the time the samples were selected there were surely eligible students at each institution who, by the nature of the selection process, were excluded from the sampling process. Similarly, there were students included in the sample who were actually ineligible to participate. While we have no objective measure of either the magnitude of these biases or their direction, we do believe them to be small. Moreover, since it is the nonrecipients that were more likely to be excluded or overcovered, it seems safe to assume that the net effect of this bias is to lower the estimates of the nonaided students.

3) Calculation of first-stage weights - The calculation of first-stage weights (i.e., the derivation of school specific population estimates) for some schools, entailed the use of estimates of the total numbers of both recipients and nonrecipients. These data, which serve as the numerators of the sampling weights, were not always available from the institutions and their estimation has led to two sources of potential bias. First, institutions' estimates of the total enrollment of eligible students were not always perfectly accurate--these were generally upwardly biased. Second, institutions often lacked a measure of the total size of their aid recipient population. As a result, we were forced to derive an estimate of its size (using the fact that the base samples were randomly selected from the student body) and to use the figure in the calculation of the first-stage weights.[8] Here, however, the direction of the bias is not known.

d) Potential biases in the site visit survey: nonresponse

The second area of potential bias results from nonresponse and is of two types - noninterview and item nonresponse. The first was discussed in Chapter 5 and the second in Chapter 4, however, due to their importance in evaluating the accuracy of the estimates they are reviewed again in this context.

To begin with, in the survey forms completed for each responding unit there may be one or more unanswered questions, i.e., item nonresponse. If the form, as a whole, met the minimum requirements for completion it was accepted despite the fact that some items might have been missing.

In such situations, one can either leave the items missing or undertake extensive imputation procedures[9] to fill-in the excluded values. With regard to the results of this survey, however, both alternatives were rejected; the first due to the limitation it would have imposed on the data analysis and the second due both to the high level of resources its implementation would have required and our skepticism about the validity of these procedures. Instead, a middle ground approach was taken - wherever possible, values were imputed for missing items using either: data available within the same form and logical consistency rules (e.g., the imputation that a student marked as dependent has no individuals in his/her own household); or data available from other forms (e.g., for aid recipients data were available from both the student questionnaire and the record review form). Such imputations are, in most cases, probable in nature and therefore subject to error. As there is no way of assuring that the errors of item imputation will result in a net balance, even on an expected basis, item response probably introduced some, albeit small, bias into the survey estimates.

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[8] The estimate is used to calculate the weights for both aid recipients and nonrecipients (i.e., total enrollment less total aid recipients).

[9] See for example, Cox, Brenda G. and Ralph E. Folsom, "An Empirical Investigation of Alternative Item Nonresponse Adjustments", American Statistical Association, 1978 Proceedings of the Section on Survey Research Methods, 1979.

The second component of nonresponse bias is noninterview or form nonresponse. As discussed in Chapter 5 the reasons for this nonresponse are varied and are largely attributable to the voluntary nature of this survey effort - what has not been addressed is the effect of this bias on the survey results. To begin with, consider the effect of nonresponse on some survey stastistics. Let

$$\bar{Y} = Y/N = W_1 \bar{Y}_1 + W_2 \bar{Y}_2$$

denote the mean of some characteristic where W_1 and W_2 denote the proportions of response and nonresponse ($W_1 + W_2 = 1$), and $\bar{Y}_1$ and $\bar{Y}_2$ denote the means of the characteristics in the two segments. These are the average values expected under the "essential survey conditions," and the use of mean response $\bar{Y}_1$ to estimate the $\bar{Y}$ causes a bias $(\bar{Y}_1 - \bar{Y})$. The relative bias (RB) of the sample mean, then, is given by:

$$RB\ (\bar{Y}_1) = \frac{(\bar{Y}_1 - \bar{Y})}{\bar{Y}} = \frac{(\bar{Y}_1 - W_1\bar{Y}_1 - W_2\bar{Y}_2)}{\bar{Y}} = W_2\ \frac{(\bar{Y}_1 - \bar{Y}_2)}{\bar{Y}}$$

If the nonresponse mean $\bar{Y}_2$ differs little from the response mean $\bar{Y}_1$, the relative bias will remain small, even for moderate values of W_2. If both W_2 and $(\bar{Y}_2 - \bar{Y}_1)$ are small, the bias should be negligible.

For the bias to be important, a large nonresponse must coincide with large differences between the means of the two segments.[10] Moreover, when subclass means are compared, there exists a bias only:

> if the effect of nonresponse bias on one class mean is much different from that on the other. Even when separate estimates have nonresponse biases, their differences often are relatively free of bias, because of similar effects of nonresponse on the compared class means.[11]

This discussion, then, has two important implications for this survey: nonresponse will be significant, even if large in absolute magnitude, only if the characteristics of the respondents are much different from those of the nonrespondents; and, if comparisons are made between subclasses, there will be a resulting bias only if the respective nonresponse biases are different.

To examine the extent of this problem, a telephone survey was conducted to a random sample of 100 nonrecipient[12] nonrespondents selected from 10 randomly selected institutions. Furthermore, in order to ensure representativeness two, institutions were sampled from each of the five major strata--four-year and two-year publics, four-year and two-year privates, and proprietaries.

While repeated attempts were made to contact all 100 students, a number of circumstances prevented our achieving this goal. To begin with, 25 of the selected students were unreachable due to the inability of school's to provide correct information on either the individual student or his/her parents. This also closely matched the rate of "postmaster returns" that was noted during the student follow-up mail survey. While this posed a problem for this follow-up survey, it was also of major significance for our interpretation of the overall survey yield. That is, since this survey was dependent upon our ability to contact students by mail, the fact that 25 percent of the nonrecipient nonrespondents were probably never given the opportunity to participate in the study meant that any true response rate was most likely higher than our completion rate (this was discussed in Chapter 5). Moreover, this conclusion does not eliminate the nonresponse bias it does greatly reduce its magnitude, i.e., the noncoverage is not a result of self-exclusion but rather stems from a weakness in institutional recordkeeping. Of the remaining students sixty were interviewed, five refused to answer our questions, three could not be contacted because their parents refused to provide a current phone number, two were foreign students who had left the country, four were travelling and could not be contacted, and one student was in the hospital.

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[10] Kish, L., op. cit. p. 535.

[11] Kish, L., op. cit. p. 536.

[12] Comparative data on recipients were available from the Record Review forms.

Provided in Exhibit 6.3 is a comparison between respondents and nonrespondents on certain key study variables. The data from the nonrecipient nonrespondents came from the follow-up survey described above; data for the aid recipient nonrespondents were derived from the Record Review data file. In terms of the nonrecipients, the most significant differences are related to parental income. The median parental income for the nonresponding students is over $35,000 while for the responding students it is $19,879. Apparently, a student's propensity to respond was, in some way, related to their actual or perceived need for student financial assistance. Students whose financial situation placed them outside of the eligible range had less incentive to respond to our requests than those to whom financial aid represented a real concern. As a result, the bias attributable to the nonresponse of nonrecipients should be negligible for most of the uses of these data, i.e., the effect is predominantly related to the high income student who is not the main focus of this study.

Turning to the aid recipients, the difference in median parental income is far less than was the case for the nonrecipients--$15,375 for the respondents and $12,801 for the nonrespondents--however, it does appear to indicate that a difference does exist between the respondents and the nonrespondents. Upon further examination, it was determined that

EXHIBIT 6.3: COMPARISON BETWEEN RESPONDENTS AND NONRESPONDENTS

	AID RECIPIENTS		NONRECIPIENTS	
CHARACTERISTIC	RESPONDENTS	NONRESPONDENTS	RESPONDENTS	NONRESPONDENTS
Sex				
Male	39.8	43.8	46.1	48.3
Female	60.2	56.2	53.9	51.7
Marital Status				
Single	83.8	83.4	75.9	82.8
Married, Divorced, etc.	16.2	16.6	24.1	17.2
Dependency Status				
Dependent	71.4	70.0	70.4	70.7
Independent	28.6	30.0	29.6	29.3
Support of Others				
No	85.6	--	85.5	82.8
Yes	14.4	--	14.5	17.2
Parent's Income				
Under 1500	3.1	5.1	1.1	0
1500-2999	4.4	4.8	1.3	0
3000-5999	10.0	15.1	3.0	0
6000-8999	11.8	15.4	4.2	3.4
9000-11,999	12.1	13.6	5.8	3.4
12,000-14,999	11.5	11.6	7.4	0
15,000-17,999	10.5	9.3	8.0	6.8
18,000-20,999	10.6	8.1	11.0	6.8
21,000-24,999	10.2	7.0	13.8	6.8
25,000-29,999	6.5	5.9	10.3	17.2
30,000-34,999	4.1	2.0	8.6	3.4
35,000 or more	5.2	2.0	25.5	48.8
Year in School				
Freshman/1st year Vo-Tech	43.7	43.3	41.8	52.2
Sophomore/2nd year Vo-Tech	25.7	25.9	26.9	19.6
Junior	17.1	17.3	17.0	13.0
Senior	13.5	13.5	14.3	15.2

this difference in median income is really due to the sources used (i.e., the nonrespondent data were drawn from the financial aid records and are actuals as opposed to the student reported data available on the student questionnaires). When this difference is accounted for, the bias becomes insignificant. With regard to the remaining characteristics (i.e., sex, marital status, dependency status, support of others, and class level) the differences are negligible.

In conclusion, it would appear that there is some response bias in terms of the aid nonrecipients. However, it is primarily located in the upper income categories that are of less policy relevance to this study. In the main area of inquiry the nonresponse bias is insignificant.

e) Potential biases in the site visit survey: response errors and processing errors

Some of the recorded responses on completed survey forms are in error. These may have arose from respondent error, interviewer error, or, in some cases, from the interaction between respondent and interviewer. A respondent may deliberately give a wrong answer, or the question may be misunderstood due to imprecise question wording, inadequate interviewing techniques, or the respondent may be misinformed or in doubt as to the correct response. The interviewer, on the other hand, may elicit a wrong answer by the way the question is asked or the interviewer may misunderstand the response and record something the respondent has not meant.

For the most part, the chance of error in the recorded response contributes to the variability of the survey estimates (i.e., their precision) and is captured by the measurement of standard errors. However, it also has a bias potential since there "is no law in probability that tends to balance out misclassification errors."[13] In particular, this bias is likely to be especially serious whenever a substantial number of response errors are deliberate since these tend to be largely one-directional. Our best guess, however, is that these effects are likely to be of minimal size.

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[13] Bureau of the Census, *op. cit.*, p. 83.

The final area for potential bias is a function of the way in which the data were converted into machine readable form. Although great pains were taken to minimize these types of errors, and by and large they have been, some residual error will generally remain after editing and coding operations have been completed. We believe these, in any case, to be extremely slight and can be disregarded.

f) Evaluation of overall bias effects

The accuracy of the site visit estimates is decreased by bias--not necessarily by each source of bias but by the net effect of all bias sources combined. Unfortunately, there are no estimates of total net bias for the estimates, because it has not been feasible to simultaneously study the effects of all sources of biased error against a standard of truth. Since the overall measure is not available, some assessment is needed of how important individual sources of potential bias may be in the total picture--important to the extent that a given source is likely to determine the direction and the approximate size of the total net bias. This is, however, related both to the particular analysis being carried out and the individual analyst's assessment of the degree to which the results are distorted by the biases which have been described here. While we will address this issue in our later analytical reports when drawing conclusions from the data, we will leave any objective determination of overall bias to the reader.

6.3: Precision of the Estimates

Assuming that the measurement of a characteristic for each individual included in the sample were free of error (i.e., accurate), then the sampling variance (i.e., the precision) would be defined as:

$$\mathrm{Var}\ (x) = (E(X_j) - E(X_k))^2$$

where x_k denotes the estimate of characteristic x derived from the k^{th} possible sample and E stands for the "expected value". In effect, this model measures the variability of the estimates which results from the chance selection of a particular sample from among all possible samples given the selected sampling frame. The square root of the sampling variance is the measure most commonly used to define the sampling error and is alternatively called the standard error of the estimate.

a) Procedures used to calculate standard errors

The methodology used to estimate the sampling errors for this study was a psuedo-replication technique[14] that: 1) provided for substantial savings in calculating variances; and 2) yielded an estimate of the variance which was far more accaurate than any other, available procedure. The latter point is of particular importance since one of the major outcomes of this study is an evaluation of differences between subgroups.[15] The technique is also useful for computing variances in large complex surveys where the usual variance formulae quickly become intractable. This was the case for this survey where a large amount of data had to be handled and a number of different population estimates are being calculated. The proven flexibility of the approach and its long-term cost-saving features made it a natural choice.

Specifically, the approach involved the use of the Balanced Repeated Replication Package (BRRP) available from the University of Michigan, Institute for Social Research, Survey Research Center. The methodology and computational specifications for this method are state-of-the-art and widely recognized; the computational formulas are available through the Survey Research Center[16] and are not reproduced here. Basically, the technique uses a system where the total sample is split up into many subsamples by combining the observations from randomly selected Primary Sampling Units (PSU) (in this study the institution was used). Each subsample is then compared with its opposite component, i.e., the remaining PSUs which were not selected. Four replicates were constructed and the computation of the variances was then based on equal sized groups; mathematically a final term is presented based on the variance of the groups and the variance between and within these groups.

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[14] Details may be found in: Replication: An Approach to the Analysis of Data from Complex Surveys. NCHS, Series 2, Number 14.

[15] See particularly Finifter, Bernard, "The Generation of Confidence: Evaluation Research Findings by Random Subsample Replication" in Sociological Methodology, ed. H.L. Costner, Jossey-Bass, London, 1972.

[16] Mailing address: Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, Michigan 48109.

b) Presentation of sampling errors

Estimates and relative errors were produced for key variables from both the student questionnaire and record review form data files. These estimates were of two main types and reflect the primary uses to which these data are to be put during the preparation of the Final Report: estimates of proportions, e.g., by institution type, the proportion of students who are Basic Grant recipients; and, estimates of means, e.g., the average Basic Grant award for students who are aid recipients. Exhibit 6.4 presents both the relative errors and 95 percent confidence intervals (i e., the estimate lies with the interval 95 percent of the time) for both types of variables and for both student data files. The relative errors are larger for those cases where the number of observations used to calculate the estimate is small. This is the case, for example, where the average BEOG award is over $1,400. Finally, the relative errors and confidence intervals were found to be stable across estimates of a similar type. That is, while the relative errors have been presented here only for Basic Grant awards, they also apply to the average aid awards from other sources. Moreover, the relative errors remain stable when estimates are produced within major population subgroups, e.g., by institution type. While such divisions of the data reduce the number of observations, it also increases the homogeniety and therefore causes a small net effect on the sampling error.

The errors presented indicate that. for the most part. the population estimates generated by the student survey data are quite precise; particularly, in the range of values that will form the basis for data analyses. For example, estimates of participation rates by financial aid

EXHIBIT 6.4: RELATIVE ERRORS AND 95 PERCENT CONFIDENCE INTERVALS FOR ESTIMATES OF PROPORTIONS AND MEANS DERIVED FROM BOTH THE RECORD REVIEW AND STUDENT QUESTIONNAIRE DATA FILES

ESTIMATE	RECORD REVIEW DATA		STUDENT QUESTIONNAIRE	
	Relative Error	Confidence Interval	Relative Error	Confidence Interval
A. Proportion				
5	0.46142	2.7-7.3	0.40744	3.0-7.0
10	0.38706	6.2-13.8	0.35442	6.5-13.5
15	0.32326	10.2-19.8	0.30866	10.4-19.6
20	0.26915	14.6-25.4	0.26987	14.6-25.4
25	0.22385	19.4-30.6	0.23615	19.4-30.6
30	0.18650	24.4-35.6	0.20801	23.8-36.2
35	0.15623	29.5-40.5	0.18438	28.5-41.5
40	0.13210	34.7-45.3	0.16454	33.4-46.6
45	0.11344	39.9-50.1	0.14782	38.3-51.7
50	0.09918	45.1-54.9	0.13352	43.3-56.7
55	0.08852	49.9-51.1	0.12095	48.3-61.7
60	0.08059	55.2-64.8	0.10942	53.4-66.6
65	0.07452	60.2-69.8	0.09824	58.6-71.4
70	0.06944	65.1-74.9	0.08672	63.9-76.1
75	0.06447	70.2-79.8	0.07417	69.4-80.6
80	0.05876	75.3-84.7	0.05989	75.2-84.8
85	0.05142	80.6-89.4	0.04320	81.3-88.7
90	0.04159	86.3-93.7	0.02340	87.9-92.1
95	0.02841	92.3-97.7	0.02510	92.6-97.4
100	0.01099	99.0-101.0	0.02826	97.2-102.8

EXHIBIT 6.4: (Continued)

ESTIMATE	RECORD REVIEW DATA		STUDENT QUESTIONNAIRE	
	Relative Error	Confidence Interval	Relative Error	Confidence Interval
Means (Average BEOG Award)				
$ 500	0.11649	442-558	N/A	
600	0.08130	552-648		
700	0.05534	661-739		
800	0.03860	770-830		
900	0.03108	872-928		
1000	0.03279	967-1033		
1100	0.04372	1052-1148		
1200	0.06388	1123-1277		
1300	0.09326	1179-1421		
1400	0.13187	1215-1585		
1500	0.17970	1230-1770		
1600	0.23675	1221-1979		

program by type of institution lie in the region of errors between ± 3 percent to ± 8 percent. This matches the outcomes specified during the design of the survey (see Chapter 2) and permit the types of analyses desired to be carried out. In terms of the precision of the estimates, the survey can be deemed a success.

6.4: The Mean Square Error of the Estimates

As previously discussed the standard error of a survey estimate will be an unsatisfactory measure of the accuracy of the estimates whenever the bias is large relative to the standard error. This is so because the standard error measures the deviation of the possible sample estimates from their expected value which, if the estimates are biased, is different than the true value. A measure of the accuracy of the estimate when a bias exists is the square root of the mean square error (generally referred to as the root mean square error or RMSE). It can be expressed as:

$$MSE\ (x) = VAR\ (x) + (Bias\ (x))^2$$

where Var (x) refers to the variances discussed in Section 6.3 and Bias refers to the various errors discussed in Section 6.2.

As long as the bias term is small, relative to the standard error, the standard error alone provides an adequate measure of accuracy. It understates RMSE in this situation only slightly and confidence intervals formed using a standard error are not seriously skewed. However, if the bias is large, the standard error is misleading, since the measure of accuracy and the distortion of the confidence limits are great. As shown in Exhibit 6.5, a case of positive bias will have the effect of increasing the proportion of sample values lying beyond the $+2\sigma$ point while decreasing those beyond the -2σ point. Negative bias has the opposite effect. The effect of this on probability statements is noted by Kish[17]:

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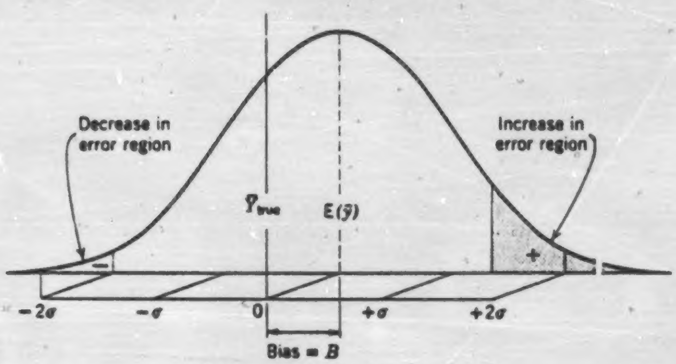
[17] Kish, L., op. cit. p. 567.

EXHIBIT 6.5: EFFECT OF BIAS AND ERROR ON ESTIMATES



Source: Kish, Leslie, Survey Sampling.

The effects of the bias can be translated into equivalent distortions of the tail areas around unbiased estimators. Thus,

$$\bar{y} - t\sigma = (\bar{y} - B) - \sigma(t - B/\sigma),$$

$$\bar{y} + t\sigma = (y - B) + \sigma(t + B/\sigma),$$

$$\bar{y} \pm t\sigma = (\bar{y} - B) \pm \sigma(t \pm B/\sigma).$$

A decrease of the effective t value inflates the error region, and an increase of t reduces it. A similar increase of the effective t, hence a reduction of the error region, is caused by a positive bias on the upper limit, or a negative bias on the lower limit. But a decrease in the effective t, hence an inflation of the error region, results from a negative bias on the upper limit or a positive bias on the lower limit. The effect on two-sided limits is measured by the sum of the two error regions, outside the interval $- t\sigma(1 - B/\sigma t)$ to $+ t(1 + B/\sigma t)$, instead of $-t\sigma$ to $+ t\sigma$. One error region is inflated and the other reduced, but the two are not equal: the net result is an inflation of the combined error region. Roughly the error rates double for every increase of 0.5 in the relative bias B/σ .

While we lack an accurate way of quantitatively measuring the degree to which these effects have taken place we feel that the biases in the student survey data are small with respect to the standard error. Therefore, it is our conclusion the standard errors represent an acceptable measure of the total mean square error of the population estimates.

APPENDIX A

Institutional Sampling Procedures

MEMORANDUM

TO: SISFAP Institutional Survey Participants
FROM: Dr. Robert T. Deane, Project Director
DATE: January 26, 1979
SUBJECT: Institution Memorandum No. 1

Institution:

A. Scheduled Visitation Dates

The dates scheduled for our on-site visit to your institution are indicated in the box provided. If there is a conflict, please give us a call.

Proposed Visitation Dates:

B. Selecting the Sample of Students

A major purpose of the institutional site visits is to collect information on a sample of students. The instructions below deal with identifying those students who will be asked to participate. The key elements which will be needed to determine the student sample are indicated in the box to the right of each statement.

(1) Our best current estimate of your institution's total enrollment of undergraduates attending half-time or more has been entered in box (1). If the number indicated is incorrect by more than 5%, please call us immediately.

(1) Total Enrollment of Undergraduates Attending Half-Time or More:

(2) The next entry gives the desired sample size based on the estimated enrollment. Schools with enrollments of less than 80 will not require sampling, as in those cases we will simply include all students.

(2) Number of Students in Sample:

(3) The third box provides the sampling ratio. It is derived by dividing enrollment by the sample size. A ratio of one in every twenty-five, for example, means that every twenty-fifth student in the list of undergraduates attending half-time or more would be selected.

(3)
Sampling
Ratio:

(4) The Office of Education wants to ensure that at least half of the responding students are recipients of financial assistance. The assistance may be of any kind, federal, state, institutional, private, or other. The fourth box gives the minimum number of aid recipients needed at your school; it is simply the sample size divided by two (fractional results are rounded up).

(4)
Sample Size,
Divided by Two:

(5) The next figure cannot be entered until the sample of students has been drawn. It is the number of students in the sample who are recipients of assistance, as defined above.

(5)
Number of
Students in
Sample Who Are
Recipients of
Aid (Any Kind)

(6) The final figure allows for the possibility of a need to select additional aid recipients in the event that the sample does not identify sufficient students to meet the minimum figure provided in box (4). Subtract the number in box (5) from that in box (4) to get the number of additional students needed and insert in box (6). In some cases the result may exceed the total number of aid recipients at your school, in which case all of your aid recipients will be included in the sample. If the number of recipients in the sample equals or exceeds the number in box (4), no additional sampling will be needed. In all remaining cases, box (6) will specify the number of additional students needed, and these will be taken directly from lists of aid recipients as described below.

(6)
(4) - (5) =
Additional
Recipients
to be Sampled:

These students may be selected directly from the list of aid recipients, using the same procedures as already described above. However, in this case you must be sure that the recipient listing includes no students that are not undergraduates or that are attending less than half-time, and you must also skip records that have already been selected. Alternatively, you may continue the sampling process with the student lists, re-entering the list at a different random entry point and skipping over any cases already chosen. With this approach, you will be likely to also sample additional nonrecipients; these can be ignored. The additional cases should also be distributed among all enrollment groups.

(7) We know that these procedures are complex, however, we anticipate that they will work well in the majority of schools. In some cases your records may be automated, and it may be possible to do some of the work by machine. In extremely difficult situations we will provide additional help to handle the work of sampling. Again, call us if you need clarification or any other assistance.

The final sample will be needed in advance of the scheduled visit, so that students can be notified about the questionnaire. As we will want to review the financial aid records for recipients in the sample, flagging those during the sampling process will also save work later on.

FOR ASSISTANCE PLEASE CALL OUR TOLL FREE NUMBER, 800-638-2784, BETWEEN THE HOURS OF 8:30 and 5:30 EST AND ASK FOR EITHER LYNNE LANTZ OR RICHARD ELLIS.

C. Specific Sampling Procedures

We know that these procedures are complex, however, we anticipate that they will work well in the majority of schools. In some cases your records may be automated, and it may be possible to do some of the work by machine. In extremely difficult situations we will provide additional help to handle the work of sampling. Again, call us if you need clarification or any other assistance.

The final sample will be needed in advance of the scheduled visit, so that students can be notified about the questionnaire. As we will want to review the financial aid records for recipients in the sample, flagging those during the sampling process will also save work later on.

IF YOU NEED ASSISTANCE IN FOLLOWING THE PROCEDURES OUTLINED BELOW, PLEASE CALL OUR TOLL FREE NUMBER, 800-638-2784, BETWEEN THE HOURS OF 8:30 and 5:30 EST AND ASK FOR EITHER LYNNE LANTZ OR RICHARD ELLIS.

For each student sampled, we will need the student's name, address, enrollment status (unless your school has no programs of two years' length or more), and status as a recipient of financial aid (yes or no). When a case is selected, marking or tagging the record in some way will facilitate the recording of these data and will also assist you if additional cases need to be chosen to make up any shortage in the numbers of recipients selected in the process.

(1) The following items will be needed to select the sample of students:

- A "list" (defined below) of all undergraduates (including aid recipients) attending on a half-time basis or more.
- A second "list" of financial aid recipients.

A "list" may take the form of a box of file cards, a computer-based record, or other media as well as a literal paper listing. The most convenient form should be used. The lists must be singular (that is, each student should appear once and only once) and they must be current (that is, students who received aid in the past, but who are not presently recipients, should not be in the recipient list). If your files do not meet these criteria, then duplicate and/or ineligible records will need to be manually excluded from the sampling process.

(2) The Office of Education desires that cases be selected separately from among all first-year students, all second-year students, all third-year students, etc. If your lists can be divided into separate listings for each level of enrollment status, this will facilitate drawing the sample. THIS REQUIREMENT WILL NOT APPLY FOR SCHOOLS THAT DO NOT HAVE PROGRAMS OF AT LEAST TWO YEARS IN LENGTH. For example, if your longest program runs no more than 18 months, the sampling can be done without regard to enrollment status.

If it is difficult or impossible to obtain lists of students grouped according to their enrollment status, skip to point (4) below; if not, continue with point (3).

(3) You are now ready to select the sample. Choose a number randomly between and including 1 and 10 (one way to do this is to simply ask somebody not involved in the sampling process to select the number). Let us suppose that the number is "4" and you have lists that group freshmen, sophomores, etc. together. Take the freshman list, count off the first four students or file records, and mark the fourth as your random starting point. Now assume that your sampling ratio (see box (3)) is one in ten. Count off ten more cases. The last record--the 14th in the file--is the first student sampled. Continue counting records and selecting every tenth student. The sample will consist of the 14th, 24th, 34th, etc. records. Continue the process to the end of the list of freshmen and keep counting from the "top" of the list until you return to the random starting point, the fourth record. In this sample, if your school has 102 freshmen eligible for the survey, the 94th record would be selected, the count would continue, and the 2nd record from the top would be the final selection.

This process is then repeated for each subsequent enrollment group--e.g., for sophomores, juniors, and so on. A new random start should be chosen for each group. After completing the tasks of point (3), skip to point (5) below.

(4) If records cannot be divided by enrollment status into freshman, junior, etc., classes: Using a four-year school as an example, sampling of all classes can be done simultaneously. Select a single random start as described above. Then keep a tally sheet (see Exhibit 1) for every record in the file. If the random start is "4", and the next three records are for a freshman, a junior, and another freshman, your tally would begin by recording 2 first-year students and 1 third-year student. When you reach the 10th first-year student, it is selected for the sample and the tally for that group starts over; when you reach the 10th second-year student, that one is selected and that tally starts over; and so on.

EXHIBIT 1: EXAMPLE OF HAND-TALLY FORM FOR SELECTING THE STUDENT SAMPLE

1st Year Students	2nd Year Students	3rd Year Students	4th Students
111	~~1111~~ 1	111	~~1111~~ 111

(5) Once the sample is drawn, compare the students sampled with the list of financial aid recipients and indicate which students are financial aid recipients. The total number of recipients can then be entered in box (5). If there is a shortage--that is, there are fewer recipients in the sample than called for by the number in box (4)--then additional aid recipients should be selected.

These students may be selected directly from the list of aid recipients, using the same procedures as already described above. However, in this case you must be sure that the recipient listing includes no students that are not undergraduates or that are attending less than half-time, and you must also skip records that have already been selected. Alternatively, you may continue the sampling process with the student lists, re-entering the list at a different random entry point and skipping over any cases already chosen. With this approach, you will be likely to also sample additional nonrecipients; these can be ignored. The additional cases should also be distributed among all enrollment groups.

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(7) We know that these procedures are complex, however, we anticipate that they will work well in the majority of schools. In some cases your records may be automated, and it may be possible to do some of the work by machine. In extremely difficult situations we will provide additional help to handle the work of sampling. Again, call us if you need clarification or any other assistance.

The final sample will be needed in advance of the scheduled visit, so that students can be notified about the questionnaire. As we will want to review the financial aid records for recipients in the sample, flagging those during the sampling process will also save work later on.

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APPENDIX B

Marginal Frequency Distributions for Student Questionnaire and Record Review Form

RECORD REVIEW FILE

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RECORD REVIEW FORM TABULATIONS
FILE    RRFORM    (CREATION DATE = 08/28/79)                                   09/23/79        PAGE    1
SUBFILE  ALL

STATUS

         ADJ CUM                       ADJ CUM                       ADJ CUM
CODE  FREQ PCT PCT          CODE  FREQ PCT PCT         CODE  FREQ PCT PCT
  1.  16313  90  90           2.   235   2  92           3.   927   8 100

                             M I S S I N G   D A T A
CODE  FREQ                  CODE  FREQ                  CODE  FREQ
  0.    40

MEAN          1.182        STD ERR       0.005        MEDIAN        1.056
MODE          1.000        STD DEV       [illegible]  VARIANCE      [illegible]
KURTOSIS      [illegible]  SKEWNESS      [illegible]  RANGE         2.000
MINIMUM       1.000        MAXIMUM       3.000

VALID CASES   11475        MISSING CASES    40
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
RECORD REVIEW FORM TABULATIONS
FILE    RRFORM    (CREATION DATE = 08/28/79)                                   09/23/79        PAGE    6
SUBFILE  ALL

BIRTHYR

         ADJ CUM                       ADJ CUM                       ADJ CUM
CODE  FREQ PCT PCT          CODE  FREQ PCT PCT         CODE  FREQ PCT PCT
  1.     2   0   0          30.   [illegible]          47.   [illegible]
  2.  [illegible]           31.   [illegible]          48.   [illegible]
[illegible]
 26.     5   0   0          43.    60   [illegible] 4   60.  2050  19 [illegible]
[illegible]
 29.     7   0   1          46.    88   1   5          62.   [illegible]    100

                             M I S S I N G   D A T A
CODE  FREQ                  CODE  FREQ                  CODE  FREQ
 99.   887

MEAN         56.309        STD ERR       0.051        MEDIAN       57.920
MODE         59.000        STD DEV       5.251        VARIANCE     [illegible]
KURTOSIS     [illegible]   SKEWNESS     -3.[illegible] RANGE        61.000
MINIMUM       1.000        MAXIMUM      62.000

VALID CASES   10628        MISSING CASES   887
```

162

```
RECORD REVIEW FORM TABULATIONS                                                             09/23/79          PAGE     9

FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE    ALL

SEX

                 ADJ  CUM                     ADJ  CUM                        ADJ  CUM
   CODE    FREQ  PCT  PCT      CODE    FREQ   PCT  PCT      CODE     FREQ     PCT  PCT
     1.    4584   42   42        2.    6450    58  100

                           M I S S I N G   D A T A
   CODE    FREQ                CODE    FREQ                 CODE     FREQ
     3.     481

MEAN               1.585      STD ERR         0.005        MEDIAN          [illegible]
MODE               2.000      STD DEV         [illegible]  VARIANCE        [illegible]
KURTOSIS           [illegible] SKEWNESS       [illegible]  RANGE           [illegible]
MINIMUM            1.000      MAXIMUM         2.000

VALID CASES     11034         MISSING CASES    481
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
RECORD REVIEW FORM TABULATIONS                                                             09/23/79          PAGE    10

FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE    ALL

RACE

                 ADJ  CUM                     ADJ  CUM                        ADJ  CUM
   CODE    FREQ  PCT  PCT      CODE    FREQ   PCT  PCT      CODE     FREQ     PCT  PCT
     1.     251    4    4        3.    1551    27   33        5.     3389     58  100
     2.     150    3    7        4.     492     8   42

                           M I S S I N G   D A T A
   CODE    FREQ                CODE    FREQ                 CODE     FREQ
     6.    5682

MEAN               4.135      STD ERR         0.015        MEDIAN          [illegible]
MODE               5.000      STD DEV         [illegible]  VARIANCE        [illegible]
KURTOSIS           [illegible] SKEWNESS       -[illegible] RANGE           4.000
MINIMUM            1.000      MAXIMUM         5.000

VALID CASES      5833         MISSING CASES   5682
```

```
RECORD REVIEW FORM TABULATIONS
FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

RESIDENT

                 ADJ CUM                  ADJ CUM                  ADJ CUM
   CODE    FREQ  PCT PCT     CODE   FREQ  PCT PCT     CODE   FREQ  PCT PCT

     1.    5940  54  54        3.   4363  39  96        5.     20   0 100
     2.     348   3  57        4.   [illegible]

                          M I S S I N G   D A T A
   CODE    FREQ              CODE   FREQ             CODE   FREQ

     6.     464

MEAN             1.929    STD ERR        0.010    MEDIAN          [illegible]
MODE             1.000    STD DEV        [illegible]    VARIANCE        [illegible]
KURTOSIS        -1.540    SKEWNESS       [illegible]    RANGE           4.000
MINIMUM          1.000    MAXIMUM        5.000

VALID CASES    11051      MISSING CASES    464
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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RECORD REVIEW FORM TABULATIONS
FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

LIVING

                 ADJ CUM                  ADJ CUM                  ADJ CUM
   CODE    FREQ  PCT PCT     CODE   FREQ  PCT PCT     CODE   FREQ  PCT PCT

     1.    3913  43  43        2.   2285  25  68        3.   2956  32 100

                          M I S S I N G   D A T A
   CODE    FREQ              CODE   FREQ             CODE   FREQ

     4.    2361

MEAN             1.900    STD ERR        0.009    MEDIAN          1.796
MODE             1.000    STD DEV        0.863    VARIANCE        0.745
KURTOSIS        -1.630    SKEWNESS       0.194    RANGE           2.000
MINIMUM          1.000    MAXIMUM        3.000

VALID CASES     9154      MISSING CASES   2361
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RECORD REVIEW FORM TABULATIONS
FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE   ALL

DEPENDCY

        ADJ CUM              ADJ CUM              ADJ CUM
CODE  FREQ PCT PCT   CODE  FREQ PCT PCT   CODE  FREQ PCT PCT
  1.  7525  73  73   [illegible]

              M I S S I N G   D A T A
CODE  FREQ          CODE  FREQ
  3.  1210

MEAN          1.270   STD ERR      [illegible]   MEDIAN     [illegible]
MODE          1.000   STD DEV      [illegible]   VARIANCE   [illegible]
KURTOSIS     -[illegible]   SKEWNESS     [illegible]   RANGE      [illegible]
MINIMUM       1.000   MAXIMUM      [illegible]

VALID CASES   10305     MISSING CASES  1210
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
RECORD REVIEW FORM TABULATIONS
FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE   ALL

MHSIZE

        ADJ CUM              ADJ CUM              ADJ CUM
CODE  FREQ PCT PCT   CODE  FREQ PCT PCT   CODE  FREQ PCT PCT
  1.   963  10  10     6.  [illegible]   [illegible]   11.  [illegible]
  2.  1129  12  22     7.  509   5  95    12.   [illegible]
  3.  1749  18  41     8.  296   3  97    13.   15   0 100
  4.  1857  20  60     9.  156   2  98    14.    7   0 100
  5.  1587  17  77    10.   78   1  99

              M I S S I N G   D A T A
CODE  FREQ          CODE  FREQ          CODE  FREQ
 99.  2024

MEAN          4.150   STD ERR       0.021   MEDIAN      3.978
MODE          4.000   STD DEV       2.094   VARIANCE    5.366
KURTOSIS      0.838   SKEWNESS      0.780   RANGE      13.000
MINIMUM       1.000   MAXIMUM      14.000

VALID CASES    9491     MISSING CASES  2024
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RECORD REVIEW FORM TABULATIONS

FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

#PSE

                ADJ CUM                   ADJ CUM                   ADJ CUM
  CODE    FREQ  PCT PCT     CODE    FREQ  PCT PCT     CODE    FREQ  PCT PCT

    0:      89    1   1       [illegible]
    1:    6173   66  67       [illegible] 135   1 [illegible]
    2:    2313   25  91       5:      22    0 100

                     M I S S I N G   D A T A
  CODE    FREQ              CODE    FREQ              CODE    FREQ

   99.    2153

MEAN            1.439     STD ERR        0.008     MEDIAN         1.2[illegible]
MODE            1.000     STD DEV        [illegible]  VARIANCE    [illegible]
KURTOSIS        5.202     SKEWNESS       [illegible]  RANGE       [illegible]
MINIMUM         0.0       MAXIMUM        [illegible]

VALID CASES    9362       MISSING CASES  2153

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FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

CLASS

                ADJ CUM                   ADJ CUM                   ADJ CUM
  CODE    FREQ  PCT PCT     CODE    FREQ  PCT PCT     CODE    FREQ  PCT PCT

    1:    4687   44  44       4:    1286   12  98      12:       3    0 100
    2:    2714   26  70       5:     154    1  99      13:      42    0 100
    3:    1679   16  86       [illegible]   1 100      [illegible]

                     M I S S I N G   D A T A
  CODE    FREQ              CODE    FREQ              CODE    FREQ

   10.     888

MEAN            2.086     STD ERR        0.014     MEDIAN         1.731
MODE            1.000     STD DEV        1.398     VARIANCE       1.955
KURTOSIS       16.435     SKEWNESS       2.853     RANGE         12.000
MINIMUM         1.000     MAXIMUM       13.000

VALID CASES   10627       MISSING CASES   888
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RECORD REVIEW FORM TABULATIONS                                          09/23/79         PAGE   [illegible]

FILE     RRFORM     (CREATION DATE = 08/28/79)
SUBFILE   ALL

OTHCLASS

                ADJ CUM                       ADJ CUM                        ADJ CUM
  CODE   FREQ   PCT PCT     CODE    FREQ    PCT PCT      CODE    FREQ   PCT PCT
   1.       6     8   8       [illegible]
   2.       1     1  10       [illegible]
   3.      58    82  92      49.       1       1  99

                               M I S S I N G   D A T A
  CODE   FREQ                 CODE    FREQ                   CODE    FREQ
    0.  11444

MEAN            [illegible]    STD ERR         1.405     MEDIAN       [illegible]
MODE            3.000          STD DEV       [illegible]  VARIANCE    [illegible]
KURTOSIS       47.027          SKEWNESS      [illegible]  RANGE       98.000
MINIMUM         1.000          MAXIMUM        99.000
VALID CASES      71            MISSING CASES [illegible]

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FILE     RRFORM     (CREATION DATE = 08/28/79)
SUBFILE   ALL

ENROLMNT

                ADJ CUM                       ADJ CUM                        ADJ CUM
  CODE   FREQ   PCT PCT     CODE    FREQ    PCT PCT      CODE    FREQ   PCT PCT
   1.    4308    44  44      2.    5097     52  95        3.     445     5 100

                               M I S S I N G   D A T A
  CODE   FREQ                 CODE    FREQ                   CODE    FREQ
    4.   1665

MEAN            1.608          STD ERR         0.006     MEDIAN        1.621
MODE            2.000          STD DEV         0.573     VARIANCE      0.328
KURTOSIS       -0.764          SKEWNESS        0.291     RANGE         2.000
MINIMUM         1.000          MAXIMUM         3.000
VALID CASES    9850            MISSING CASES  1665
```

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FILE    RRFORM   (CREATION DATE = [illegible])
SUBFILE   ALL

SATVERBL

                 ADJ CUM                     ADJ CUM                     ADJ CUM
     CODE   FREQ PCT PCT     CODE     FREQ PCT PCT     CODE     FREQ PCT PCT

     200.     73   7   7     400.      297  29  60     600.      117  12  97
     300.    237  24  31     500.      249  25  85     700.       34   3 100

                           M I S S I N G   D A T A
     CODE   FREQ                CODE   FREQ                CODE   FREQ
     999.  10506

MEAN          [illegible]   STD ERR       [illegible]   MEDIAN        [illegible]
MODE          400.000       STD DEV       122.[illegible]   VARIANCE  [illegible]
KURTOSIS       -0.519       SKEWNESS        0.197       RANGE         [illegible]
MINIMUM       200.000       MAXIMUM       700.000
VALID CASES     1007        MISSING CASES 10506

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FILE    RRFORM   (CREATION DATE = 08/28/79)
SUBFILE   ALL

SATMATH

                 ADJ CUM                     ADJ CUM                     ADJ CUM
     CODE   FREQ PCT PCT     CODE     FREQ PCT PCT     CODE     FREQ PCT PCT

     200.     44   4   4     400.      266  26  50     600.      149  15  9[illegible]
     300.    191  19  23     500.      [illegible]  [illegible]  [illegible]     700.      [illegible]  [illegible] 100

                           M I S S I N G   D A T A
     CODE   FREQ                CODE   FREQ                CODE   FREQ
     999.  10506

MEAN          457.284       STD ERR         4.196       MEDIAN        451.351
MODE          400.000       STD DEV       133.292       VARIANCE    17766.809
KURTOSIS       -0.725       SKEWNESS        0.143       RANGE         500.000
MINIMUM       200.000       MAXIMUM       700.000
VALID CASES     1009        MISSING CASES 10506
```

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RECORD REVIEW FORM TABULATIONS                                        [illegible]      PAGE  22
FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE   ALL

ACTENGLI

                  ADJ CUM                       ADJ CUM                       ADJ CUM
   CODE   FREQ    PCT PCT     CODE      FREQ    PCT PCT     CODE      FREQ    PCT PCT
     [illegible]             [illegible]                   [illegible]
     7.     55      9  10       19.     283   [illegible]     31.          5    1 100

                                 M I S S I N G   D A T A
   CODE   FREQ                  CODE    FREQ                CODE    FREQ
    99.  10933

MEAN         16.701       STD ERR       0.311       MEDIAN       [illegible]
MODE         19.000       STD DEV      [illegible]  VARIANCE     [illegible]
KURTOSIS    [illegible]   SKEWNESS     [illegible]  RANGE        [illegible]
MINIMUM       1.000       MAXIMUM      31.000
VALID CASES      502      MISSING CASES 10933
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE   ALL

ACTSOCST

                  ADJ CUM                       ADJ CUM                       ADJ CUM
   CODE   FREQ    PCT PCT     CODE      FREQ    PCT PCT     CODE      FREQ    PCT PCT
     1.     10      2   2       13.  [illegible]             25.   [illegible]
     7.     95     17  20       19.     158   28  67         31.      28    5 100

                                 M I S S I N G   D A T A
   CODE   FREQ                  CODE    FREQ                CODE    FREQ
    99.  10949

MEAN         17.505       STD ERR       0.317       MEDIAN       18.316
MODE         19.000       STD DEV       7.547       VARIANCE     [illegible]
KURTOSIS     -0.780       SKEWNESS     -0.280       RANGE        30.000
MINIMUM       1.000       MAXIMUM      31.000
VALID CASES      566      MISSING CASES 10949
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SUBFILE   ALL

ACTSCIEN

                    ADJ CUM                      ADJ CUM                      ADJ CUM
     CODE     FREQ  PCT PCT     CODE     FREQ  PCT PCT     CODE     FREQ  PCT PCT

       1.        1    0   0      13.      133   24  33      25.      187 [illegible]
       7.       43    8   8      19.      139   26  58      31.       70   13 100

                             M I S S I N G   D A T A
     CODE    FREQ                 CODE    FREQ                  CODE    FREQ
      99.   10972

MEAN          [illegible]     STD ERR       [illegible]     MEDIAN        [illegible]
MODE           25.000         STD DEV       [illegible]     VARIANCE      [illegible]
KURTOSIS       -0.872         SKEWNESS      [illegible]     RANGE          30.000
MINIMUM         1.000         MAXIMUM        31.000

VALID CASES       543         MISSING CASES 10972

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SUBFILE   ALL

ACTMATH

                    ADJ CUM                      ADJ CUM                      ADJ CUM
     CODE     FREQ  PCT PCT     CODE     FREQ  PCT PCT     CODE     FREQ  PCT PCT

       1.       18    3   3      13.      141   25  32      25.      179   32  93
       7.  [illegible]           19.      126 [illegible]   31.  [illegible]

                             M I S S I N G   D A T A
     CODE    FREQ                 CODE    FREQ                  CODE    FREQ
      99.   10952

MEAN           16.382         STD ERR         0.318         MEDIAN         16.977
MODE           25.000         STD DEV         7.540         VARIANCE       56.847
KURTOSIS       -0.633         SKEWNESS       -0.320         RANGE          30.000
MINIMUM         1.000         MAXIMUM        31.000

VALID CASES       563         MISSING CASES 10952
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RECORD REVIEW FORM TABULATIONS                                   [illegible]   PAGE [illegible]

FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

ACTTOTAL

                ADJ CUM                ADJ CUM                ADJ CUM
    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT
     [illegible]
     7.     54   9   9     19.    215  34  71     31.     10   2 100

    CODE   FREQ            CODE   FREQ            CODE   FREQ
     99.  10891

MEAN          18.087     STD ERR       0.230     MEDIAN       18.27[illegible]
MODE          19.000     STD DEV       [illegible]     VARIANCE     [illegible]
KURTOSIS      [illegible]     [illegible]      [illegible]
MINIMUM        1.000     MAXIMUM      31.000

VALID CASES      626     MISSING CASES 10891

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FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

HSRANK

                ADJ CUM                ADJ CUM                ADJ CUM
    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT
     1.    805  54  54      3.    216  15  94
     2.    376  25  79      4.     91   6 100

                        M I S S I N G   D A T A
    CODE   FREQ            CODE   FREQ            CODE   FREQ
     [illegible]  10027

MEAN           1.726     STD ERR       0.024     MEDIAN        1.4[illegible]
MODE           1.000     STD DEV       [illegible]     VARIANCE      [illegible]
KURTOSIS      -0.837     SKEWNESS      [illegible]     RANGE         3.000
MINIMUM        1.000     MAXIMUM       4.000

VALID CASES     1488     MISSING CASES 10027
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FILE   RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

MAJOR

                ADJ CUM                      ADJ CUM                      ADJ CUM
   CODE    FREQ PCT PCT         CODE    FREQ PCT PCT         CODE    FREQ PCT PCT

     1.     143   2   2           8.     561   7  55          15. [illegible]
     2.     243   3   5           9. [illegible]             [illegible]
   [illegible]
     5.     138   2  33          12.     399   5  65      [illegible]
   [illegible]                   13.     559   7  73      [illegible]
   [illegible]

                       M I S S I N G   D A T A
   CODE    FREQ               CODE    FREQ               CODE    FREQ

    18.    4005

MEAN          9.235     STD ERR     [illegible]   MEDIAN      [illegible]
MODE          3.000     STD DEV     [illegible]   VARIANCE    [illegible]
KURTOSIS  [illegible]   SKEWNESS    [illegible]   RANGE       [illegible]
MINIMUM   [illegible]   MAXIMUM     [illegible]

VALID CASES     7510       MISSING CASES  4005

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RECORD REVIEW FORM TABULATIONS
FILE   RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

OTHMAJOR

                ADJ CUM                      ADJ CUM                      ADJ CUM
   CODE    FREQ PCT PCT         CODE    FREQ PCT PCT         CODE    FREQ PCT PCT

   [illegible]                   [illegible]                  [illegible]
     4.       4   2  92           7.       2   1  97          99.       1   1 100

                       M I S S I N G   D A T A
   CODE    FREQ               CODE    FREQ               CODE    FREQ

   [illegible]

MEAN          3.092     STD ERR     [illegible]   MEDIAN      [illegible]
MODE      [illegible]   STD DEV     [illegible]   VARIANCE    [illegible]
KURTOSIS  [illegible]   SKEWNESS    [illegible]   RANGE       [illegible]
MINIMUM       1.000     MAXIMUM       99.000

VALID CASES      185       MISSING CASES 11330
```

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                                                                              09/23/79            PAGE  30
FILE   RRFORM   (CREATION DATE = [illegible])
SUBFILE   ALL

LOADHRS

                 ADJ CUM                      ADJ CUM                      ADJ CUM
   CODE    FREQ  PCT PCT     CODE    FREQ  PCT PCT     CODE    FREQ  PCT PCT
     0.      50    1   1      13.     279    6  39      24.  [illegible]
     3.  [illegible]
     4.  [illegible]
     5.  [illegible]
     6.      72    2   5     [illegible]
     7.      57  [illegible]
     8.      63  [illegible]
     9.      74  [illegible]
    10.      44  [illegible]
    11.      10  [illegible]
    12.    1066   23  [illegible]

                         M I S S I N G   D A T A
   CODE    FREQ       CODE    FREQ       CODE    FREQ
    99.    6831

MEAN        [illegible]    STD ERR      [illegible]    MEDIAN      [illegible]
MODE          12.000       STD DEV      [illegible]    VARIANCE    [illegible]
KURTOSIS    [illegible]    SKEWNESS     [illegible]    RANGE       [illegible]
MINIMUM     [illegible]    MAXIMUM      [illegible]

VALID CASES    4684      MISSING CASES  6831
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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FILE   RRFORM   (CREATION DATE = 08/28/79)
SUBFILE   ALL

LOADTYPE

                 ADJ CUM                      ADJ CUM                      ADJ CUM
   CODE    FREQ  PCT PCT     CODE    FREQ  PCT PCT     CODE    FREQ  PCT PCT
     1.    7095   90  90       2.     799   10 100

                         M I S S I N G   D A T A
   CODE    FREQ       CODE    FREQ       CODE    FREQ
     3.    3621

MEAN           1.101       STD ERR         0.003       MEDIAN          1.056
MODE           1.000       STD DEV         0.302       VARIANCE        0.091
KURTOSIS       4.996       SKEWNESS        2.645       RANGE           1.000
MINIMUM        1.000       MAXIMUM         2.000

VALID CASES    7894      MISSING CASES  3621
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RECORD REVIEW FORM TABULATIONS                                          [illegible]/23/79   PAGE [illegible]
FILE     RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

TIME

                 ADJ CUM                     ADJ CUM                      ADJ CUM
   CODE   FREQ  PCT PCT     CODE    FREQ    PCT PCT     CODE    FREQ    PCT PCT
    1.    7887   97  97      2.      271      3 100

                            M I S S I N G   D A T A
   CODE   FREQ              CODE    FREQ                 CODE    FREQ
    3.    3357

MEAN           1.033        STD ERR        0.002        MEDIAN      1.017
MODE           1.000        STD DEV        0.179        VARIANCE    0.032
KURTOSIS      25.154        SKEWNESS       5.219        RANGE       1.000
MINIMUM        1.000        MAXIMUM        2.000

VALID CASES    8158         MISSING CASES  3357

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RECORD REVIEW FORM TABULATIONS                                          [illegible]   PAGE [illegible]
FILE     RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

GPA

                 ADJ CUM                     ADJ CUM                      ADJ CUM
   CODE   FREQ  PCT PCT     CODE    FREQ    PCT PCT     CODE    FREQ    PCT PCT
   [illegible]
   1.5      35    1   6      2.5       2      0  40      3.5       1      0  86
```

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[illegible]

                          M I S S I N G   D A T A
   CODE   FREQ               CODE   FREQ                 CODE   FREQ
    0.0   8328

   MEAN            3.718       STD ERR          [illegible]    VARIANCE      [illegible]
   MODE            3.000       STD DEV          0.72[illegible]    RANGE         3.800
   KURTOSIS       -0.131       SKEWNESS        -0.38[illegible]
   MINIMUM         0.200       MAXIMUM          4.00[illegible]

   VALID CASES     3187        MISSING CASES  8328



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SUBFILE   ALL

BUDGET

                  ADJ CUM                   ADJ CUM                      ADJ CUM
   CODE     FREQ  PCT PCT      CODE    FREQ  PCT PCT     CODE      FREQ  PCT PCT

      0.      23    0   0      350.    1149   11  57     750.       124    1  96
      1.      51    0   1      400.     895    9  66     800.       125    1  97
     50.     179    2   2      450.     753    7  73     850.        89    1  98
    100.     249    2   5      500.     860    8  81     900.        51    0  98
    150.     895    9  13      550.     737    7  88     950.        63    0  99
    200.    1019   10  23      600.     280    3  90    1000.       132    1 100
    250.    1165   11  34      650.     187    2  92    2000.         9    0 100
    300.    1233   12  46      700.     261    3  95

                          M I S S I N G   D A T A
   CODE   FREQ               CODE   FREQ                 CODE   FREQ
  99999.  1106

MEAN          3746.638      STD ERR          19.395      MEDIAN       3500.0[illegible]
MODE          3001.000      STD DEV        1978.769      VARIANCE39[illegible]
KURTOSIS         5.279      SKEWNESS          1.232      RANGE       20001.000
MINIMUM          0.0        MAXIMUM       20001.000

VALID CASES    10409        MISSING CASES  1106
```

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FILE    RRFORM   (CREATION DATE = 08/28/79)
SUBFILE   ALL

CARD2

              ADJ CUM                    ADJ CUM                    ADJ CUM
   CODE   FREQ PCT PCT     CODE   FREQ PCT PCT     CODE   FREQ PCT PCT
     2.  11515 100 100

MEAN           2.000     STD ERR        0.0      MEDIAN        2.000
MODE           2.000     STD DEV        0.0      VARIANCE      0.0
RANGE          0.0       MINIMUM        2.000    MAXIMUM       2.000
VALID CASES   11515      MISSING CASES    0

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FILE    RRFORM   (CREATION DATE = 08/28/79)
SUBFILE   ALL

NTIS

              ADJ CUM                    ADJ CUM                    ADJ CUM
   CODE   FREQ PCT PCT     CODE   FREQ PCT PCT     CODE   FREQ PCT PCT

      0.  6601  68  68    4001.   323   3  94    9001.    29   0 100
[illegible]
[illegible]
[illegible]                                     20001.    15   0 100
   2001.   597   6  86    7001.   102   1  98
   3001.   457   5  91    8001.    74   1  99

                          M I S S I N G   D A T A
   CODE   FREQ              CODE   FREQ                CODE   FREQ

 99999.   1833

MEAN         874.724     STD ERR       19.720    MEDIAN      [illegible]
MODE           0.0       STD DEV     1940.994    VARIANCE  3767[illegible]
KURTOSIS      18.991     SKEWNESS       3.457    RANGE     20001.000
MINIMUM        0.0       MAXIMUM    20001.000

VALID CASES     9682     MISSING CASES  1833
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RECORD REVIEW FORM TABULATIONS
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NTI1040

                ADJ CUM                     ADJ CUM                      ADJ CUM
    CODE   FREQ PCT PCT       CODE   FREQ PCT PCT        CODE   FREQ PCT PCT
      0.  11381  99  99         1.    131   1 100          9.      3   0 100

MEAN             0.014     STD ERR        0.002     MEDIAN        [illegible]
MODE             0.0       STD DEV        [illegible]     VARIANCE      [illegible]
KURTOSIS       [illegible]     SKEWNESS       [illegible]     RANGE         [illegible]
MINIMUM          0.0       MAXIMUM        9.000

VALID CASES    11515       MISSING CASES      0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
RECORD REVIEW FORM TABULATIONS
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NTISER

                ADJ CUM                     ADJ CUM                      ADJ CUM
    CODE   FREQ PCT PCT       CODE   FREQ PCT PCT        CODE   FREQ PCT PCT
      0:   5953  52  52         3:      1   0 100
      1:   5556  48 100         9:      5   0 100

MEAN             0.487     STD ERR        0.005     MEDIAN        [illegible]
MODE             0.0       STD DEV        0.531     VARIANCE      0.282
KURTOSIS        26.606     SKEWNESS       [illegible]     RANGE         9.000
MINIMUM          0.0       MAXIMUM        9.000

VALID CASES    11515       MISSING CASES      0
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NTIOTH

                ADJ CUM                     ADJ CUM                     ADJ CUM
   CODE   FREQ  PCT PCT     CODE    FREQ   PCT PCT     CODE    FREQ   PCT PCT
     0.   7633   66  66       1.    3874    34 100       9.  [illegible]   100

MEAN             0.343    STD ERR      [illegible]    MEDIAN       [illegible]
MODE             0.0      STD DEV      [illegible]    VARIANCE     [illegible]
KURTOSIS      4[illegible].574    SKEWNESS     [illegible]    RANGE        [illegible]
MINIMUM          0.0      MAXIMUM       9.000

VALID CASES    11515     MISSING CASES      0

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ADIS

                ADJ CUM                     ADJ CUM                     ADJ CUM
   CODE   FREQ  PCT PCT     CODE    FREQ   PCT PCT     CODE    FREQ   PCT PCT
    -1.      7    0   0    5001.     434     4  42   14001.     593 [illegible] 74
     0.   1715   17  17    6001.     379     4  46   16001.     475     5  79
     1.  [illegible]        [illegible]                  [illegible]
  1001.  [illegible]   25   [illegible]                  [illegible]
  2001.    419    4  29    9001.     349     4  57   [illegible]
  3001.    410    4  33   10001.     622     6  [illegible]   381 [illegible]
  4001.    436    4  38   [illegible]                   [illegible]  4  96
                                                                  [illegible]

                    M I S S I N G   D A T A
   CODE   FREQ              CODE    FREQ               CODE    FREQ
 99999.   1555

MEAN          9327.773    STD ERR      [illegible]    MEDIAN       [illegible]
MODE             0.0      STD DEV     8553.[illegible]    VARIANCE     [illegible]
KURTOSIS        -0.474    SKEWNESS       0.72[illegible]    RANGE      30002.000
MINIMUM         -1.000    MAXIMUM    30001.000

VALID CASES     9960     MISSING CASES   1555

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AGI1040

                ADJ CUM                     ADJ CUM                     ADJ CUM
   CODE   FREQ  PCT PCT     CODE    FREQ   PCT PCT     CODE    FREQ   PCT PCT
     0.  11068   96  96       1.     444     4 100       9.       3     0 100

MEAN             0.041    STD ERR        0.002    MEDIAN         0.020
MODE             0.0      STD DEV        0.241    VARIANCE       0.058
KURTOSIS       506.077    SKEWNESS      15.850    RANGE          9.000
MINIMUM          0.0      MAXIMUM        9.000

VALID CASES    11515     MISSING CASES      0
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FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

AGISER

                    ADJ CUM                          ADJ CUM                          ADJ CUM
     CODE    FREQ   PCT PCT      CODE       FREQ    PCT PCT     CODE       FREQ    PCT PCT

       0.    6072   53  53        2.          1      0 100
       1.    5435   47 100        9.          7      0 100

MEAN              0.478        STD ERR           0.005       MEDIAN           [illegible]
MODE              0.0          STD DEV           [illegible] VARIANCE         [illegible]
KURTOSIS          3[illegible] SKEWNESS          [illegible] RANGE            [illegible]
MINIMUM           0.0          MAXIMUM           9.000

VALID CASES     11515          MISSING CASES        0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
RECORD REVIEW FORM TABULATIONS                                        09/23/79          PAGE   53
FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

AGIOTH

                    ADJ CUM                          ADJ CUM                          ADJ CUM
     CODE    FREQ   PCT PCT      CODE       FREQ    PCT PCT     CODE       FREQ    PCT PCT
       0.    7569   66  66        1.       3935     34 100        9.         11      0 100

MEAN              0.350        STD ERR           0.005       MEDIAN           0.261
MODE              0.0          STD DEV           0.544       VARIANCE         0.296
KURTOSIS         58.707        SKEWNESS          4.238       RANGE            9.000
MINIMUM           0.0          MAXIMUM           9.000

VALID CASES     11515          MISSING CASES        0
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EARN2NDS

              ADJ CUM                       ADJ CUM                      ADJ CUM
    CODE   FREQ PCT PCT      CODE    FREQ PCT PCT       CODE    FREQ PCT PCT

     -1.      1   0   0     3001.     241   3  89      8001.      95   1  97
      0.   7379  78  78     4001.     214   2  91      9001.     [illegible]
      1.    339   4  82     5001.     [illegible]     10001.     102   1 [illegible]
    1001.   253   3  84     6001.     141   2  94      20001.      8   0 100
    2001.   212   2  87     7001.     122   1  96

                          M I S S I N G   D A T A
   CODE   FREQ               CODE   FREQ                  CODE   FREQ
  99999.  2063

MEAN         [illegible]     STD ERR     [illegible]
MODE           0.0           STD DEV        2285.[illegible]    VARIANCE52[illegible]
KURTOSIS       [illegible]   SKEWNESS          3.003            RANGE     20002.000
MINIMUM       -1.000         MAXIMUM       20001.000
VALID CASES     9452         MISSING CASES  2063

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FILE     RRFORM    (CREATION DATE = 08/28/79)                                       09/23/79          PAGE   45
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EARN1040

              ADJ CUM                      ADJ CUM                      ADJ CUM
    CODE   FREQ PCT PCT      CODE   FREQ PCT PCT        CODE   FREQ PCT PCT

      0.  11350  99  99        1.    163   1 100          9.      2   0 100

MEAN             0.016       STD ERR         0.002       MEDIAN         [illegible]
MODE             0.0         STD DEV         [illegible] VARIANCE       [illegible]
KURTOSIS      146[illegible] SKEWNESS        [illegible] RANGE          [illegible]
MINIMUM          0.0         MAXIMUM         9.000
VALID CASES    11515         MISSING CASES      0
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SUBFILE   ALL

TAX1040

                 ADJ CUM                   ADJ CUM                   ADJ CUM
    CODE   FREQ  PCT PCT    CODE   FREQ    PCT PCT    CODE   FREQ    PCT PCT

      0.  11185   97  97
      1.    327    3 100      9.      3     0 100

MEAN           0.031        STD ERR     [illegible]   MEDIAN       [illegible]
MODE           0.0          STD DEV        0.227      VARIANCE     [illegible]
KURTOSIS     679.089        SKEWNESS      19.785      RANGE          9.000
MINIMUM        0.0          MAXIMUM        9.000

VALID CASES    11515        MISSING CASES      0

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FILE    RRFORM    (CREATION DATE = 06/28/79)
SUBFILE   ALL

TAXSER

                 ADJ CUM                   ADJ CUM                   ADJ CUM
    CODE   FREQ  PCT PCT    CODE   FREQ    PCT PCT    CODE   FREQ    PCT PCT

      0.   6051   53  53      1.   5458     47 100      9.      6     0 100

MEAN           0.479        STD ERR        0.005      MEDIAN         0.451
MODE           0.0          STD DEV        0.536      VARIANCE       0.287
KURTOSIS      31.114        SKEWNESS       6.158      RANGE          9.000
MINIMUM        0.0          MAXIMUM        9.000

VALID CASES    11515        MISSING CASES      0
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SUBFILE   ALL

TAXOTH

                  ADJ CUM                     ADJ CUM                      ADJ CUM
   CODE    FREQ   PCT PCT      CODE    FREQ   PCT PCT      CODE    FREQ    PCT PCT
     0.    7771    67  67        1.    3734    32 100        9.      10      0 100

MEAN            0.332      STD ERR     [illegible]      MEDIAN       [illegible]
MODE            0.0        STD DEV     [illegible]      VARIANCE     [illegible]
KURTOSIS       58.563      SKEWNESS    [illegible]      RANGE        [illegible]
MINIMUM         0.0        MAXIMUM         9.000

VALID CASES    11515       MISSING CASES      0

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SUBFILE   ALL

MEDEXPS

                  ADJ CUM                     ADJ CUM                      ADJ CUM
   CODE    FREQ   PCT PCT      CODE    FREQ   PCT PCT      CODE    FREQ    PCT PCT
     0.    5232    54  54      301.     432     5  76     1001.     416      4  96
     1.  [illegible]          401.  [illegible]          1501.  [illegible]    100
   101.  [illegible]   66      501.  [illegible]
   201.     526     5  71      701.     578     6  92

                          M I S S I N G   D A T A
   CODE    FREQ                CODE    FREQ                CODE    FREQ
 99999.    1902

MEAN          216.413      STD ERR         3.736      MEDIAN       [illegible]
MODE          [illegible]  STD DEV     [illegible]    VARIANCE     [illegible]
KURTOSIS        3.542      SKEWNESS    [illegible]    RANGE         1501.000
MINIMUM         0.0        MAXIMUM      1501.000

VALID CASES     9613       MISSING CASES   1902

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SUBFILE   ALL

MED1040

                  ADJ CUM                     ADJ CUM                      ADJ CUM
   CODE    FREQ   PCT PCT      CODE    FREQ   PCT PCT      CODE    FREQ    PCT PCT
     0.   11410    99  99        1.     103     1 100        9.       2      0 100

MEAN            0.011      STD ERR         0.001      MEDIAN            0.005
MODE            0.0        STD DEV         0.151      VARIANCE          0.023
KURTOSIS     2176.616      SKEWNESS       38.907      RANGE             9.000
MINIMUM         0.0        MAXIMUM         9.000

VALID CASES    11515       MISSING CASES      0
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RECORD REVIEW FORM TABULATIONS [illegible]

FILE     RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

MEDSER

                  ADJ CUM                 ADJ CUM                ADJ CUM
    CODE    FREQ  PCT PCT     CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

      0.    5966  52 [illegible]

MEAN             0.498     STD ERR        0.005     MEDIAN          [illegible]
MODE             0.0       STD DEV        [illegible]  VARIANCE     [illegible]
KURTOSIS        3[illegible].896  SKEWNESS  [illegible]  RANGE      [illegible]
MINIMUM          0.0       MAXIMUM        9.000

VALID CASES    11515      MISSING CASES  [illegible]

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FILE     RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

MEDOTH

                  ADJ CUM                 ADJ CUM                ADJ CUM
    CODE    FREQ  PCT PCT     CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

      0.    7727  67  67        1.   3778  33 100      9.     10   0 100

MEAN             0.336     STD ERR        0.005     MEDIAN          0.245
MODE             0.0       STD DEV        0.534     VARIANCE        0.286
KURTOSIS        57.907     SKEWNESS       4.164     RANGE           9.000
MINIMUM          0.0       MAXIMUM        9.000

VALID CASES    11515      MISSING CASES      0
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RECORD REVIEW FORM TABULATIONS                                                  [illegible]/23/79                PAGE   56
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SUBFILE   ALL

LOSS8

                     ADJ CUM                       ADJ CUM                       ADJ CUM
      CODE    FREQ   PCT PCT      CODE    FREQ   PCT PCT      CODE    FREQ   PCT PCT

        0.    [illegible]  [illegible]  [illegible]   [illegible]  [illegible]  [illegible]  [illegible]   1001.   [illegible]  [illegible]  [illegible]
        1.    [illegible]   1  [illegible]   [illegible]  [illegible]  1  [illegible]
      101.    100    1  96     401.     67   1  98

                          M I S S I N G   D A T A
      CODE    FREQ                CODE    FREQ                CODE    FREQ

    99999.    [illegible]

MEAN         19.495       STD ERR        1.1[illegible]       MEDIAN          [illegible]
MODE         [illegible]  STD DEV        [illegible]          VARIANCE        [illegible]
KURTOSIS     52.540       SKEWNESS       [illegible]          RANGE          1001.000
MINIMUM       0.0         MAXIMUM     1001.000

VALID CASES    [illegible]     MISSING CASES    [illegible]

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FILE    RRFORM    (CREATION DATE = [illegible])
SUBFILE   ALL

LOSS1040

                     ADJ CUM                       ADJ CUM                       ADJ CUM
      CODE    FREQ   PCT PCT      CODE    FREQ   PCT PCT      CODE    FREQ   PCT PCT

        0.   11422    99  99        1.      90    1 100         9.      3    0 100

MEAN          0.010       STD ERR        0.002        MEDIAN          0.005
MODE          0.0         STD DEV        0.17[illegible]        VARIANCE        [illegible]
KURTOSIS   2056.253       SKEWNESS      4[illegible].251        RANGE           9.000
MINIMUM       0.0         MAXIMUM        9.000

VALID CASES   11515       MISSING CASES      0
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FILE     RRFORM    (CREATION DATE = 08/28/79)                                  [illegible]          PAGE   58
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LOSSSER

                ADJ CUM                       ADJ CUM                        ADJ CUM
    CODE   FREQ PCT PCT       CODE    FREQ PCT PCT       CODE    FREQ PCT PCT
      0.   5973  52  52          1.   5535  48 100          [illegible]    [illegible] 100

MEAN          0.486     STD ERR       0.005     MEDIAN      [illegible]
MODE       [illegible]  STD DEV     [illegible] VARIANCE    [illegible]
KURTOSIS     35.000     SKEWNESS    [illegible] RANGE       [illegible]
MINIMUM       0.0       MAXIMUM       9.000

VALID CASES   11515     MISSING CASES  [illegible]

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LOSSOTH

                ADJ CUM                       ADJ CUM                        ADJ CUM
    CODE   FREQ PCT PCT       CODE    FREQ PCT PCT       CODE    FREQ PCT PCT
      0.   7736  67  67          1.   3770  33 100          9.      9   0 100

MEAN          0.336     STD ERR       0.005     MEDIAN      [illegible]
MODE          0.0       STD DEV       0.528     VARIANCE    [illegible]
KURTOSIS     54.633     SKEWNESS      3.939     RANGE       [illegible]
MINIMUM       0.0       MAXIMUM       9.000

VALID CASES   11515     MISSING CASES      0

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RECORD REVIEW FORM TABULATIONS

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EMSTUITS

                ADJ CUM                       ADJ CUM                        ADJ CUM
    CODE   FREQ PCT PCT       CODE    FREQ PCT PCT       CODE    FREQ PCT PCT
      0.   8415  89  89        101.    187   2  95       1001.    198   2 100
      1.    204   2  92        301.    120   1  96
     51.    107   1  93        501.    186   2  98

                              M I S S I N G   D A T A
    CODE   FREQ                   CODE    FREQ                  CODE    FREQ
  99999.   2098

MEAN         37.385     STD ERR       1.662     MEDIAN      [illegible]
MODE       [illegible]  STD DEV     161.[illegible]  VARIANCE  [illegible]
KURTOSIS     25.244     SKEWNESS    [illegible] RANGE       1001.000
MINIMUM       0.0       MAXIMUM    1001.000

VALID CASES    9417     MISSING CASES   2098
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FILE     RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

TUITOTH

               ADJ CUM                   ADJ CUM                  ADJ CUM
  CODE   FREQ  PCT PCT      CODE   FREQ  PCT PCT      CODE   FREQ PCT PCT

    0.   7829   68  68        2.      1    0 100        9.     10   0 100
    1.   3674   32 100        7.      1    0 100

MEAN            0.328      STD ERR     0.005         MEDIAN      [illegible]
MODE            0.0        STD DEV     [illegible]   VARIANCE    [illegible]
KURTOSIS        5[illegible]   SKEWNESS    [illegible]   RANGE       [illegible]
MINIMUM         0.0        MAXIMUM     9.000

VALID CASES   11515        MISSING CASES     0

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ASSETS

               ADJ CUM                    ADJ CUM                    ADJ CUM
  CODE   FREQ  PCT PCT      CODE    FREQ  PCT PCT      CODE    FREQ  PCT PCT

    0.   2942   31  31      5001.    628    7  [illegible]   25001.   [illegible]  [illegible]  86
    1.    710    8  39     10001.    737    8  [illegible]   30001.    564  [illegible]  [illegible]
  251.    723    8  47     15001.    625    7  75     40001.   [illegible]  [illegible]  97
 2001.    676    7  [illegible]     20001.    557  [illegible]  [illegible]     50001.   [illegible]  [illegible]  100

                          M I S S I N G   D A T A

  CODE    FREQ

99999.    2200

MEAN        10361.512      STD ERR      151.387       MEDIAN      [illegible]
MODE            0.0        STD DEV    14611.961       VARIANCE********
KURTOSIS        2.167      SKEWNESS       1.612       RANGE       50001.000
MINIMUM         0.0        MAXIMUM    50001.000

VALID CASES    9315        MISSING CASES  2200

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ASST1040

               ADJ CUM                    ADJ CUM                    ADJ CUM
  CODE   FREQ  PCT PCT      CODE    FREQ  PCT PCT      CODE    FREQ  PCT PCT

    0.  11501  100 100        1.      11    0 100        9.       3    0 100

MEAN            0.003      STD ERR        0.001       MEDIAN         0.001
MODE            0.0        STD DEV        [illegible]   VARIANCE       [illegible]
KURTOSIS     3511.857      SKEWNESS      58.249       RANGE          9.000
MINIMUM         0.0        MAXIMUM        9.000

VALID CASES   11515        MISSING CASES     0

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FILE   RRFORM   [illegible]
SUBFILE   ALL

ASSETSER

             ADJ CUM                  ADJ CUM                  ADJ CUM
   CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

     0.   7223  63  63      1.   4286  37 100      9.  [illegible]   100

MEAN          0.377     STD ERR     [illegible]   MEDIAN      [illegible]
MODE          0.0       STD DEV     [illegible]   VARIANCE    [illegible]
KURTOSIS     36.701     SKEWNESS    [illegible]   RANGE       [illegible]
MINIMUM      [illegible] MAXIMUM    [illegible]

VALID CASES   11515     MISSING CASES      0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

RECORD REVIEW FORM TABULATIONS   [illegible]

FILE   RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

ASSETOTH

             ADJ CUM                  ADJ CUM                  ADJ CUM
   CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

     0.   6731  58  58      1.   4772  41 100      9.     12 [illegible] 100

MEAN          0.423     STD ERR      0.005    MEDIAN       0.355
MODE          0.0       STD DEV      0.559    VARIANCE     0.313
KURTOSIS     50.495     SKEWNESS     3.646    RANGE        9.000
MINIMUM       0.0       MAXIMUM      9.000

VALID CASES   11515     MISSING CASES      0
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FILE    RRFORM    (CREATION DATE = 08/28/79)
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CARD3

                ADJ CUM                ADJ CUM                ADJ CUM
  CODE    FREQ  PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

    3.   11515 100 100

MEAN            3.000     STD ERR        0.0      MEDIAN         3.000
MODE            3.000     STD DEV        0.0      VARIANCE       0.0
RANGE           0.0       MINIMUM        3.000    MAXIMUM        3.000

VALID CASES    11515      MISSING CASES    0

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SUBFILE   ALL

VETBENS

                ADJ CUM                ADJ CUM                ADJ CUM
  CODE    FREQ  PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

     0.   9070   95  95    751.      9   0  99    2501.    25   0  99
     1.    [illegible]  [illegible]  97   1001.   [illegible]   0  [illegible]   3001.   [illegible]   0 [illegible]
   251.    198    2  99   1501.   [illegible]   0  99    [illegible]   [illegible]   0 100
   501.     19    0  99   2001.     14   0  99    5001.     6   0 100

                      M I S S I N G   D A T A
  CODE    FREQ             CODE   FREQ              CODE   FREQ

 99999.   1987

MEAN           38.697     STD ERR        3.270    MEDIAN         [illegible]
MODE            0.0       STD DEV      [illegible]    VARIANCE   [illegible]
KURTOSIS      121.633     SKEWNESS      10.577    RANGE       5001.000
MINIMUM         0.0       MAXIMUM     5001.000

VALID CASES     9528      MISSING CASES  1987

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

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FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

VET1040

                ADJ CUM                ADJ CUM                ADJ CUM
  CODE    FREQ  PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

    0.   11494 100 100      1.     19   0 100      9.      2   0 100

MEAN            0.003     STD ERR        0.001    MEDIAN         0.001
MODE            0.0       STD DEV        0.125    VARIANCE       0.016
KURTOSIS     4617.266     SKEWNESS      65.083    RANGE          9.000
MINIMUM         0.0       MAXIMUM        9.000

VALID CASES    11515      MISSING CASES    0
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FILE    RRFORM    (CREATION DATE = 08/29/79)
SUBFILE   ALL

VETSER

                    ADJ CUM                     ADJ CUM                      ADJ CUM
     CODE     FREQ  PCT PCT      CODE     FREQ  PCT PCT      CODE     FREQ  PCT PCT

       0.     6022   52  52      [illegible]

MEAN            0.482       STD ERR        [illegible]   MEDIAN       [illegible]
MODE         [illegible]    [illegible]    [illegible]   [illegible]  [illegible]
KURTOSIS       3[illegible] SKEWNESS       [illegible]   RANGE        [illegible]
MINIMUM         0.0         MAXIMUM          9.000

VALID CASES     11515       [illegible]

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RECORD REVIEW FORM TABULATIONS

FILE    RRFORM    (CREATION DATE = [illegible])
SUBFILE   ALL

VETOTH

                    ADJ CUM                     ADJ CUM                      ADJ CUM
     CODE     FREQ  PCT PCT      CODE     FREQ  PCT PCT      CODE     FREQ  PCT PCT

       0.     7730   67  67        1.     3773   33 100        9.       12    0 100

MEAN            0.337       STD ERR          0.005       MEDIAN          0.245
MODE            0.0         STD DEV          0.546       VARIANCE        0.298
KURTOSIS       63.717       SKEWNESS         5.583       RANGE           9.000
MINIMUM         0.0         MAXIMUM          9.000

VALID CASES     11515       MISSING CASES        0
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RECORD REVIEW FORM TABULATIONS                                   [illegible]     PAGE  73

FILE    RAFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

SSBENS

                 ADJ CUM                  ADJ CUM                   ADJ CUM
   CODE    FREQ  PCT PCT     CODE    FREQ PCT PCT      CODE    FREQ PCT PCT

     0.    [illegible]  [illegible]  [illegible]    [illegible]    [illegible]  [illegible]  [illegible]    [illegible]    [illegible]  [illegible]  [illegible]
     1.     186   2  92      201.     143   2  97      1001.    281   3 100

   CODE    FREQ              CODE    FREQ              CODE    FREQ

 99999.    1982

MEAN           35.701      STD ERR         1.493      MEDIAN     [illegible]
MODE            0.0        STD DEV      [illegible]      VARIANCE   [illegible]
KURTOSIS     [illegible]       SKEWNESS    [illegible]      RANGE      [illegible]
MINIMUM         0.0        MAXIMUM      1001.000

VALID CASES     9533       MISSING CASES    1982

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FILE    RAFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

SS1040

                 ADJ CUM                  ADJ CUM                   ADJ CUM
   CODE    FREQ  PCT PCT     CODE    FREQ PCT PCT      CODE    FREQ PCT PCT
     0.   11496  100 100       1.      16   0 100        9.      3   0 100

MEAN        [illegible]        STD ERR     [illegible]       MEDIAN     [illegible]
MODE        [illegible]        STD DEV     [illegible]       VARIANCE   [illegible]
KURTOSIS     3327.316      SKEWNESS    [illegible]       RANGE      [illegible]
MINIMUM         0.0        MAXIMUM     9.000

VALID CASES    11515       MISSING CASES       0
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FILE     RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

SSBENSER

              ADJ CUM               ADJ CUM              ADJ CUM
  CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

    0:   6030  52  52      9:      6   0 100
    1:   5479  48 100

MEAN          0.481      STD ERR        0.005      MEDIAN          [illegible]
MODE          [illegible] STD DEV       [illegible] VARIANCE       [illegible]
KURTOSIS     35.[illegible]67 SKEWNESS  [illegible] RANGE           9.000
MINIMUM       0.0        MAXIMUM        9.000

VALID CASES   11515      MISSING CASES  [illegible]

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                                                           09/23/79    PAGE   76
FILE     RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

SSBENOTH

              ADJ CUM               ADJ CUM              ADJ CUM
  CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

    0.   7745  67  67      1.   3755  33 100      9.     15   0 100

MEAN          0.338      STD ERR        [illegible] MEDIAN         [illegible]
MODE          0.0        STD DEV        0.503      VARIANCE        [illegible]
KURTOSIS     7[illegible].598 SKEWNESS  [illegible] RANGE          9.000
MINIMUM       0.0        MAXIMUM        9.000

VALID CASES   11515      MISSING CASES     0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

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                                                           [illegible]  PAGE   77
FILE     RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

PARENTS

              ADJ CUM               ADJ CUM              ADJ CUM
  CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

   -1:    356   4   4    401:    510   5  70   1501:    393   4  89
    0:   4945  50  54    601:    [illegible] 5 75 2001: [illegible] 3 92
    1:    555   6  59    801:    340   3  78   3001:    402   4  96
  201.    537   5  65   1001.    666   7  85   5001.    230   2 100

                     M I S S I N G   D A T A
  CODE   FREQ             CODE   FREQ              CODE   FREQ
99999.   1624

MEAN        548.836      STD ERR       10.270      MEDIAN          [illegible]
MODE          0.0        STD DEV     1021.[illegible] VARIANCE1043328.[illegible]
KURTOSIS      7.026      SKEWNESS       2.569      RANGE        5002.000
MINIMUM      -1.000      MAXIMUM     5001.000

VALID CASES    9891      MISSING CASES  1624
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FILE     RAFORM     (CREATION DATE = 08/28/79)
SUBFILE    ALL

SEI

               ADJ  CUM                    ADJ  CUM                   ADJ  CUM
  CODE    FREQ PCT  PCT      CODE    FREQ  PCT  PCT     CODE    FREQ  PCT  PCT

     0:   2987  33   33      701:     667    7   65    2501:     391    7   91
     1:    [illegible]       1001:    [illegible]      3001:    [illegible]
   101:    [illegible]       1201:    [illegible]      4501:     420    [illegible] 100
   301:    509   6   51      1501:    492    5   [illegible]
   501:    543   6   57      2001:    401    4   [illegible]

                             M I S S I N G   D A T A
  CODE    FREQ              CODE    FREQ                CODE    FREQ
  9999.   2377

MEAN        [illegible]    STD ERR      [illegible]    MEDIAN     [illegible]
MODE          0.0          STD DEV      1231.[illegible]    VARIANCE1516[illegible]
KURTOSIS      1.511        SKEWNESS     1.[illegible]  RANGE        4501.000
MINIMUM       0.0          MAXIMUM      4501.000

VALID CASES     9138       MISSING CASES   2377

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FILE     RAFORM     (CREATION DATE = 08/28/79)
SUBFILE    ALL

SUMMERS

               ADJ  CUM                    ADJ  CUM                   ADJ  CUM
  CODE    FREQ PCT  PCT      CODE    FREQ  PCT  PCT     CODE    FREQ  PCT  PCT

     0:   5726  53   53      351:    1891   17   76     601:    1057   10   95
     1:    531   5   58      501:     974    9   85     701:     587    5  100

                             M I S S I N G   D A T A
  CODE    FREQ              CODE    FREQ                CODE    FREQ
 99999.    759

MEAN        204.117        STD ERR         2.457       MEDIAN          0.439
MODE          0.0          STD DEV       254.814       VARIANCE    64930.096
KURTOSIS     -1.207        SKEWNESS        0.654       RANGE         701.000
MINIMUM       0.0          MAXIMUM       701.000

VALID CASES    10756       MISSING CASES    759
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SUBFILE   ALL

STASSETS

              ADJ CUM                     ADJ CUM                     ADJ CUM
  CODE   FREQ PCT PCT     CODE    FREQ PCT PCT     CODE    FREQ PCT PCT

    0.   7303  68  68     101:  [illegible] [illegible] [illegible]     701:  [illegible] [illegible] 100
    1:    852   8  76     201:  [illegible]  5  90
   51:    515   5  81     401:    545   5  95

                        M I S S I N G   D A T A
  CODE   FREQ              CODE    FREQ              CODE    FREQ

 99999.   759

MEAN        72.299      STD ERR        1.6[illegible]      MEDIAN         [illegible]
MODE         0.0        STD DEV      17[illegible]         VARIANCE       [illegible]
KURTOSIS     6.221      SKEWNESS       2.[illegible]       RANGE          701.000
MINIMUM      0.0        MAXIMUM      701.000

VALID CASES   10756     MISSING CASES    759

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FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

AYEARNS

              ADJ CUM                     ADJ CUM                     ADJ CUM
  CODE   FREQ PCT PCT     CODE    FREQ PCT PCT     CODE    FREQ PCT PCT

    0.   9623  89  89     501:    122   1  94    1501:    164   2  98
    1:    118   1  91     751:    167   2  95    2501:    215   2 100
  251:    195   2  92    1001:    152   1  96

                        M I S S I N G   D A T A
  CODE   FREQ              CODE    FREQ              CODE    FREQ

 99999.   759

MEAN       108.928      STD ERR        4.027       MEDIAN           0.050
MODE         0.0        STD DEV      417.659       VARIANCE    174439.063
KURTOSIS    20.798      SKEWNESS       4.509       RANGE         2501.000
MINIMUM      0.0        MAXIMUM     2501.000

VALID CASES   10756     MISSING CASES    759
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FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE   ALL

SPOUSES

                 ADJ CUM                    ADJ CUM                     ADJ CUM
    CODE    FREQ PCT PCT      CODE     FREQ PCT PCT      CODE     FREQ PCT PCT
      0.   10554  98  98   [illegible]

                            M I S S I N G   D A T A
    CODE    FREQ              CODE     FREQ              CODE     FREQ
  99999.     796

MEAN          24.971     STD ERR      2.[illegible]     MEDIAN     [illegible]
MODE           0.0       STD DEV    248.635     VARIANCE  6[illegible]
KURTOSIS      95.233     SKEWNESS     9.[illegible]     RANGE      2501.000
MINIMUM        0.0       MAXIMUM   [illegible]

VALID CASES    10719       MISSING CASES    796
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE   ALL

OTHCONTS

                 ADJ CUM                    ADJ CUM                     ADJ CUM
    CODE    FREQ PCT PCT      CODE     FREQ PCT PCT      CODE     FREQ PCT PCT
      0.    9648  97  97      501.       73   1  98     2501.       95   1 100
      1.      88   1  97     1001.       92   1  99

                            M I S S I N G   D A T A
    CODE    FREQ              CODE     FREQ              CODE     FREQ
  99999.    1519

MEAN          36.649     STD ERR      2.630     MEDIAN        0.018
MODE           0.0       STD DEV    262.993     VARIANCE  69163.125
KURTOSIS      71.058     SKEWNESS     8.313     RANGE      2501.000
MINIMUM        0.0       MAXIMUM   2501.000

VALID CASES     9996       MISSING CASES   1519
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FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE  ALL

UTHCONTR

              ADJ  CUM                          ADJ  CUM                         ADJ  CUM
  CODE   FREQ PCT  PCT        CODE   FREQ  PCT  PCT       CODE   FREQ  PCT  PCT
    1.      5   2    2   [illegible]
    2.    120  37   39   [illegible]
    3.     10   3   42   [illegible]
    4.     32  10   [illegible]
    5.      1   0   52         10.       7    2   94

                               M I S S I N G   D A T A
  CODE   FREQ               CODE   FREQ                CODE   FREQ

    0.  11194

MEAN            5.093    STD ERR         0.173    MEDIAN       [illegible]
MODE            2.000    STD DEV     [illegible]  VARIANCE     [illegible]
KURTOSIS    [illegible]  SKEWNESS    [illegible]  RANGE        [illegible]
MINIMUM         1.000    MAXIMUM        13.000

VALID CASES       321    MISSING CASES 11194

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

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FILE    RRFORM    (CREATION DATE = 08/20/79)
SUBFILE  ALL

BADQ2

              ADJ  CUM                          ADJ  CUM                         ADJ  CUM
  CODE   FREQ PCT  PCT        CODE   FREQ  PCT  PCT       CODE   FREQ  PCT  PCT
    0.  11515 100  100

MEAN            0.251    STD ERR         0.000    MEDIAN          0.251
MODE            0.251    STD DEV         0.000    VARIANCE        0.000
KURTOSIS       -2.000    SKEWNESS        1.000    RANGE           0.0
MINIMUM         0.251    MAXIMUM         0.251

VALID CASES     11515    MISSING CASES       6
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SUBFILE   ALL

BADQ

                  ADJ CUM                        ADJ CUM                         ADJ CUM
    CODE    FREQ  PCT PCT      CODE      FREQ    PCT PCT     CODE      FREQ      PCT PCT
           11515  100 100

VALID CASES    11515       MISSING CASES      0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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SUBFILE   ALL

CARD4

                  ADJ CUM                        ADJ CUM                         ADJ CUM
    CODE    FREQ  PCT PCT      CODE      FREQ    PCT PCT     CODE      FREQ      PCT PCT
      4.   11515  100 100

MEAN            4.000      STD ERR          0.0       MEDIAN             4.000
MODE            4.000      STD DEV          0.0       VARIANCE           0.0
RANGE           0.0        MINIMUM          4.000     MAXIMUM            4.000

VALID CASES    11515       MISSING CASES      0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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SUBFILE   ALL

BEOGS

                  ADJ CUM                        ADJ CUM                         ADJ CUM
    CODE    FREQ  PCT PCT      CODE      FREQ    PCT PCT     CODE      FREQ      PCT PCT
      0.    4487   40  40      601.       869      8  60     1101.      453        4  83
      1.       8    0  40      801.       616      6  65     1201.      650        6  89
     51.     656    6  46      901.       944      8  74     1501.     1263       11 100
    401.     647    6  52     1001.       591      5  79     1601.       16        0 100

                          M I S S I N G   D A T A
    CODE    FREQ               CODE      FREQ                CODE      FREQ
   9999.     335

MEAN          518.532      STD ERR          5.008     MEDIAN           401.178
MODE            0.0        STD DEV        529.546     VARIANCE      280418.975
KURTOSIS       -1.528      SKEWNESS         0.367     RANGE           1601.000
MINIMUM         0.0        MAXIMUM       1601.000

VALID CASES    11180       MISSING CASES    335
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RECORD REVIEW FORM TABULATIONS

FILE     RRFORM    (CREATION DATE = 08/28/79)                       [illegible]         PAGE  89
SUBFILE   ALL

SEOGS

                  ADJ CUM                        ADJ CUM                          ADJ CUM
    CODE    FREQ  PCT PCT      CODE     FREQ  PCT PCT      CODE     FREQ  PCT PCT
      0.    [illegible]  81   81      501.     [illegible]   [illegible]   [illegible]      [illegible]
      1.    [illegible]   [illegible]   83      751.     [illegible]   [illegible]   [illegible]
    201.     817   7   91     1001.      151   1 100

                          M I S S I N G   D A T A
    CODE    FREQ              CODE    FREQ                CODE    FREQ
   9999.     368

MEAN           79.623       STD ERR         2.002       MEDIAN          [illegible]
MODE            0.0         STD DEV        [illegible]       VARIANCE        [illegible]
KURTOSIS        7.560       SKEWNESS        [illegible]       RANGE        1501.000
MINIMUM         0.0         MAXIMUM      1501.000

VALID CASES    11147        MISSING CASES     368

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SUBFILE   ALL

NOSLS

                  ADJ CUM                        ADJ CUM                          ADJ CUM
    CODE    FREQ  PCT PCT      CODE     FREQ  PCT PCT      CODE     FREQ  PCT PCT
      0.    8115  73  73      501.      507   5  87     1251.      272   2 100
      1.     [illegible]   [illegible]  76      751.      812   7  94
    251.     748   7  82     1001.      362   3  98

                          M I S S I N G   D A T A
    CODE    FREQ              CODE    FREQ                CODE    FREQ
   9999.     447

MEAN          150.471       STD ERR         3.054       MEDIAN          [illegible]
MODE            0.0         STD DEV       321.327       VARIANCE   103251.000
KURTOSIS        2.786       SKEWNESS        [illegible]       RANGE        1251.000
MINIMUM         0.0         MAXIMUM      1251.000

VALID CASES    11068        MISSING CASES     447
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SUBFILE    ALL

CWSS

                 ADJ  CUM                      ADJ  CUM                      ADJ  CUM
   CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT

     0.    8157   73   73      601.     788 [illegible]   1301.     270 [illegible]
     1.     417    5   77      801.     505    5 [illegible]
   401.     593    5   82     1001.     403    4   98

                          M I S S I N G   D A T A
   CODE    FREQ                CODE    FREQ                CODE    FREQ
  9999.     384

MEAN          169.524      STD ERR          3.200      MEDIAN     [illegible]
MODE            0.0        STD DEV     33[illegible]   VARIANCE   [illegible]
KURTOSIS        2.286      SKEWNESS     [illegible]    RANGE        1301.000
MINIMUM         0.0        MAXIMUM       1301.000

VALID CASES   11131        MISSING CASES    384

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FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE    ALL

GSLS

                 ADJ  CUM                      ADJ  CUM                      ADJ  CUM
   CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT

     0.    9290   85   85     1001.     488    4   93     2501.      14    0  100
     1.      99    1   86     1501.     246    2   95
   501.     352    3   89     2001.     486    4  100

                          M I S S I N G   D A T A
   CODE    FREQ                CODE    FREQ                CODE    FREQ
  9999.     540

MEAN          186.031      STD ERR          4.809      MEDIAN          0.091
MODE            0.0        STD DEV        503.791      VARIANCE   253805.750
KURTOSIS        6.399      SKEWNESS         2.747      RANGE        2501.000
MINIMUM         0.0        MAXIMUM       2501.000

VALID CASES   10975        MISSING CASES    540
```

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CODE   FREQ PCT PCT     CODE   FREQ PCT PCT     CODE   FREQ PCT PCT

  0.   5426  47  47      30.    106   1  89      63.      3   0  96
  1.    [illegible]      31.    [illegible]      [illegible]
  2.    129 [illegible]  32.    128 [illegible]  [illegible]
  3.    164 [illegible]  [illegible]             [illegible]
  [illegible]            [illegible]             [illegible]
  5.    [illegible]      [illegible]             [illegible]
  6.    591 [illegible]  [illegible]             [illegible]
  7.     12 [illegible]  37.     63 [illegible]  [illegible]  3
  8.    420 [illegible]  [illegible]             [illegible]
  9.   1058 [illegible]  [illegible]             [illegible]
 10.    [illegible]      [illegible]             [illegible]
 11.    126   1  83      43.     85 [illegible]  [illegible] 15
 12.     24   0  83      [illegible]             [illegible]
 13.    [illegible]      [illegible]             [illegible]
 14.    110 [illegible]  [illegible]             [illegible]
 15.     34   0  84      47.    [illegible]      [illegible]
 16.     43   0  85      48.     87 [illegible]  [illegible]
 17.     21 [illegible]  [illegible]             [illegible]
 18.      2   0  85      50.     25 [illegible]  [illegible]
 19.      2   0  85      51.    [illegible]      [illegible]
 20.    [illegible]      52.    [illegible]      [illegible]
 21.    [illegible]      [illegible]             [illegible]
 22.    155 [illegible]  [illegible]             [illegible]  2
 23.     18   0  87      56.    [illegible]      [illegible]
 24.      9   0  87      57.    [illegible]      [illegible] 16
 25.    [illegible]      [illegible]             [illegible]
 26.     10   0  88      59.     17 [illegible]  [illegible]
 27.      1   0  88      60.      1   0  90      99.    133   1 100
 28.      6   0  88      61.     12   0  90
 29.     29   0  88      [illegible]

MEAN          9.012     STD ERR        0.173     MEDIAN        1.102
MODE          [illegible] STD DEV      [illegible] VARIANCE    [illegible]
KURTOSIS      8.988     SKEWNESS       2.916     RANGE        99.000
MINIMUM       0.0       MAXIMUM       99.000

VALID CASES   11518     MISSING CASES  [illegible]
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OTH2S

                 ADJ CUM                     ADJ CUM                     ADJ CUM
   CODE    FREQ  PCT PCT     CODE     FREQ  PCT PCT     CODE     FREQ  PCT PCT

      0.   8803   81  81      401.     257    2  92     1001.     156    1  97
    101.   [illegible]  [illegible]  83      501.     210    2  94     1501.     [illegible]    1  [illegible]
    201.    235    2  85      601.     191    2  95     1801.     135    1  99
    301.    212    2  87      801.     212    2  96     2001.      78    1 100

                               M I S S I N G   D A T A
   CODE    FREQ                CODE   FREQ                  CODE   FREQ
   9999.    586

MEAN          114.711     STD ERR          3.007      MEDIAN          0.121
MODE            0.0       STD DEV        314.386      VARIANCE    [illegible]
KURTOSIS       12.915     SKEWNESS         3.540      RANGE        2001.000
MINIMUM         0.0       MAXIMUM       2001.000

VALID CASES    10929      MISSING CASES    586
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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OTH2TYPE

                 ADJ CUM                     ADJ CUM                     ADJ CUM
   CODE    FREQ  PCT PCT     CODE     FREQ  PCT PCT     CODE     FREQ  PCT PCT

     0.    9428   82  82      25.        2    0  96      59.        8    0  99
     1.     162    1  83      26.       10    0  96      60.        2    0  99
     2.      21    0  83      27.        1    0  96      61.       20    0  99
     3.      28    0  84      28.        1    0  96      62.        2    0  99
     4.      13    0  84      29.        5    0  96      67.        1    0  99
     5.      32    0  84      30.       17    0  97      68.        1    0  99
     6.     126    1  85      31.       41    0  97      71.        1    0  99
     7.       6    0  85      32.       12    0  97      72.        8    0  99
     8.     221    2  87      35.        2    0  97      73.        1    0  99
     9.     491    4  91      37.       21    0  97      74.        1    0  99
    10.     183    2  93      38.       23    0  97      75.        2    0  99
    11.     135    1  94      39.       31    0  98      76.        1    0  99
    12.      18    0  94      40.       26    0  98      77.        1    0  99
    13.       3    0  94      43.       10    0  98      79.        1    0 100
    14.      23    0  95      45.       29    0  98      80.        1    0 100
    15.      25    0  95      46.        7    0  98      82.        1    0 100
    16.      48    0  95      48.       27    0  99      85.        2    0 100
    17.      14    0  95      49.        5    0  99      90.        5    0 100
    20.      17    0  95      50.        8    0  99      91.        1    0 100
    21.      27    0  96      51.        7    0  99      92.        3    0 100
    22.      47    0  96      53.        2    0  99      94.        1    0 100
    23.      16    0  96      54.       14    0  99      99.       25    0 100
    24.       2    0  96      55.        2    0  99

MEAN            3.253     STD ERR          0.103      MEDIAN          0.111
MODE            0.0       STD DEV         11.027      VARIANCE    1[illegible]
KURTOSIS       32.077     SKEWNESS         5.249      RANGE          99.000
MINIMUM         0.0       MAXIMUM         99.000

VALID CASES    11515      MISSING CASES      0
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OTH2SOUR

               ADJ CUM                         ADJ CUM                          ADJ CUM
   CODE   FREQ PCT PCT    CODE     FREQ PCT PCT       CODE     FREQ PCT PCT

     0:   9375  81  81       4:     257   2  93          8:    [illegible]   1  97
     1:    722 [illegible] [illegible]       5:     123   1 [illegible]          9:    329   3 100
     2:   [illegible] [illegible] [illegible]       6:   [illegible] [illegible] [illegible]
     3:    317   3  91       7:     120   1  97

MEAN              0.761     STD ERR        [illegible]     MEDIAN       [illegible]
MODE              0.0       STD DEV        [illegible]     VARIANCE     [illegible]
KURTOSIS          7.740     SKEWNESS       2.[illegible]     RANGE        9.000
MINIMUM           0.0       MAXIMUM        9.000
VALID CASES   11515         MISSING CASES      0

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OTH3S

                ADJ CUM                         ADJ CUM                          ADJ CUM
   CODE    FREQ PCT PCT    CODE     FREQ PCT PCT      CODE     FREQ PCT PCT

      0:  10337  95  95    401:       78   1  97      1001:      31   0  99
      1:     85   1  96    501:       66   1  98      1251:      23   0 100
    201:     73   1  97    601:       72   1  99      1501:      13   0 100
    301:     24   0  97    801:       50   0  99      2001:      21   0 100

                            M I S S I N G   D A T A
   CODE    FREQ                CODE    FREQ                CODE    FREQ
   9999:    642

MEAN             26.762     STD ERR         1.497     MEDIAN       [illegible]
MODE              0.0       STD DEV       156.[illegible]     VARIANCE     [illegible]
KURTOSIS         73.061     SKEWNESS        7.[illegible]     RANGE     2001.000
MINIMUM           0.0       MAXIMUM      2001.000
VALID CASES   10873         MISSING CASES    642
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OTH3TYPE

              ADJ  CUM                        ADJ  CUM                         ADJ  CUM
 CODE   FREQ  PCT  PCT        CODE    FREQ    PCT  PCT       CODE     FREQ     PCT  PCT

   0.  10988   95   95         21.       9      0   99        51.        1       0  100
   1.     54    0   96         22.      12      0   99   [illegible]
   2.     12    0   96   [illegible]
   3.     10    0   96
   4.  [illegible]  0   96
   5.  [illegible]  0   96
   6.      2    0   96
   7.  [illegible]  0   97
   8.     40    0   97
   9.     15    0   98
  10.  [illegible]  0   98
  11.      5    0   99
  12.      3    0   99
  13.      2    0   99
  14.  [illegible]  0   99
  15.  [illegible]  0   99
  16.      2    0   99
  17.      4    0   99         49.       3      0  100        99.        1       0  100

MEAN           0.686       STD ERR        0.048      MEDIAN      [illegible]
MODE           0.0         STD DEV     [illegible]   VARIANCE    [illegible]
KURTOSIS   193.[illegible] SKEWNESS    [illegible]   RANGE       [illegible]
MINIMUM        0.0         MAXIMUM       99.000

VALID CASES   11515        MISSING CASES     0

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OTH3SOUR

              ADJ  CUM                        ADJ  CUM                         ADJ  CUM
 CODE   FREQ  PCT  PCT        CODE    FREQ    PCT  PCT       CODE     FREQ     PCT  PCT

   0:  10971   95   95          4:     110      1   98         8:       22       0   99
   1:    111    1   96          5:      22      0   98         9:      131       1  100
   2:      4    0   96          6:      62      1   99
   3:     87    1   97          7:      15      0   99

MEAN           0.235       STD ERR        0.011      MEDIAN         0.025
MODE           0.0         STD DEV        1.220      VARIANCE       1.488
KURTOSIS      34.730       SKEWNESS       5.633      RANGE          9.000
MINIMUM        0.0         MAXIMUM        9.000

VALID CASES   11515        MISSING CASES     0

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FILE    RRFORM   (CREATION DATE = 08/28/79)
SUBFILE   ALL

UTH4S

                ADJ CUM                  ADJ CUM                   ADJ CUM
   CODE    FREQ PCT PCT     CODE    FREQ PCT PCT     CODE     FREQ PCT PCT

     0.   10743  99  99     401.      14   0 100    1001.        2   0 100
     1.      20   0  99     501.      10   0 100    [illegible]  2   0 100
   201.      13   0  99     [illegible] [illegible] 0 100  [illegible] 1 0 100
   301.      16   0  99     801.      15   0 100    2001.        1   0 100

                              M I S S I N G   D A T A
   CODE    FREQ             CODE    FREQ             CODE    FREQ

  9999.     664

MEAN            [illegible].857      STD ERR       0.610        MEDIAN       [illegible]
MODE            0.0                  STD DEV       [illegible]  VARIANCE     [illegible]
KURTOSIS        [illegible]          SKEWNESS      [illegible]  RANGE        [illegible]
MINIMUM         0.0                  MAXIMUM    2001.000

VALID CASES    10851        MISSING CASES    664

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SUBFILE   ALL

UTH4TYPE

                ADJ CUM                  ADJ CUM                   ADJ CUM
   CODE    FREQ PCT PCT     CODE    FREQ PCT PCT     CODE     FREQ PCT PCT

     0.   11408  99  99      10.      22   0 100      51.        3   0 100
     1.       9   0  99      11.      13   0 100      54.        2   0 100
     2.       1   0  99      12.       3   0 100      67.        1   0 100
     [illegible]  1   0  99  [illegible]   1   0 100  [illegible]  1   0 100
     [illegible]  1   0  99  [illegible]   1   0 100  [illegible]  1   0 100
     5.       1   0  99      17.       1   0 100      73.        1   0 100
     6.       6   0  99      21.       1   0 100      82.        1   0 100
     8.       5   0  99      30.       1   0 100
     9.      31   0 100      41.       1   0 100

MEAN            0.127                STD ERR       0.019        MEDIAN        0.005
MODE            0.0                  STD DEV       [illegible]  VARIANCE     [illegible]
KURTOSIS      868.504                SKEWNESS     26.994        RANGE        82.000
MINIMUM         0.0                  MAXIMUM      82.000

VALID CASES    11515        MISSING CASES      0

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OTH4SOUR

                 ADJ CUM                          ADJ CUM                          ADJ CUM
     CODE    FREQ PCT PCT       CODE       FREQ PCT PCT       CODE       FREQ PCT PCT

      0.    11396  99  99         4.        20   0  99
      1.       14   0  99         5.         4   0  99         8.          [illegible]  0 100
      2.  [illegible]   0  99         6.  [illegible]   0 100         9.         37   0 100
      3.       15   0  99         7.         5   0 100

MEAN           0.050        STD ERR      [illegible]      MEDIAN       [illegible]
MODE           0.0          STD DEV       0.536          VARIANCE      0.[illegible]
KURTOSIS     151.185        SKEWNESS     12.024          RANGE         9.000
MINIMUM        0.0          MAXIMUM       9.000

VALID CASES   11515      MISSING CASES       0

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CWSJOB

                 ADJ CUM                          ADJ CUM                          ADJ CUM
     CODE    FREQ PCT PCT       CODE       FREQ PCT PCT       CODE       FREQ PCT PCT

      1.     8133  78  78         2.      2179  21  99         3.         88   1 100

                            M I S S I N G   D A T A
     CODE    FREQ                CODE      FREQ                CODE      FREQ

      4.     1115

MEAN           1.226        STD ERR       0.005          MEDIAN        1.139
MODE           1.000        STD DEV       0.[illegible]          VARIANCE      0.[illegible]
KURTOSIS       1.359        SKEWNESS      1.605          RANGE         2.000
MINIMUM        1.000        MAXIMUM       3.000

VALID CASES   10400      MISSING CASES    1115

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SERINFIL

                ADJ CUM               ADJ CUM               ADJ CUM
    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

      1.   6001  53  53      2.   5366  47 100

                        M I S S I N G   D A T A
    CODE   FREQ            CODE   FREQ            CODE   FREQ
      3.     61              4.     87

MEAN             1.472      STD ERR        [illegible]    [illegible]    [illegible]
MODE             1.000      STD DEV          0.499        VARIANCE         0.249
KURTOSIS        -1.988      SKEWNESS         0.112        RANGE            1.000
MINIMUM          1.000      MAXIMUM          2.000

VALID CASES   11367         MISSING CASES     148

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SEREDIT

                ADJ CUM               ADJ CUM               ADJ CUM
    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT    CODE   FREQ PCT PCT

      1.   1532  26  26      2.    151   3  28      3.   4285  72 100

                        M I S S I N G   D A T A
    CODE   FREQ            CODE   FREQ            CODE   FREQ

      0.   5547

MEAN             2.461      STD ERR          0.011        MEDIAN           2.904
MODE             3.000      STD DEV          0.873        VARIANCE         0.762
KURTOSIS        -0.877      SKEWNESS        -1.040        RANGE            2.000
MINIMUM          1.000      MAXIMUM          3.000

VALID CASES    5968         MISSING CASES    5547
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SUBFILE    ALL

SERVERFY

                  ADJ CUM                  ADJ CUM                   ADJ CUM
    CODE   FREQ PCT PCT       CODE   FREQ PCT PCT       CODE   FREQ PCT PCT

      1.    240   4   4         2.    146   2   7         3.   5524  93 100

                           M I S S I N G   D A T A
    CODE   FREQ               CODE   FREQ               CODE   FREQ
      0.   5605

MEAN             2.89[illegible]   STD ERR        [illegible]   MEDIAN        [illegible]
MODE             3.000   STD DEV        [illegible]   VARIANCE      [illegible]
KURTOSIS        14.415   SKEWNESS       -3.965   RANGE         2.000
MINIMUM          1.000   MAXIMUM         3.000

VALID CASES    5910      MISSING CASES  5605

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VPAR1040

                  ADJ CUM                  ADJ CUM                   ADJ CUM
    CODE   FREQ PCT PCT       CODE   FREQ PCT PCT       CODE   FREQ PCT PCT

      0.  11270  98  98         2.      7   0 100
      1.    229   2 100         9.      9   0 100

MEAN             0.022   STD ERR         0.002   MEDIAN        0.011
MODE             0.0     STD DEV        [illegible]   VARIANCE      [illegible]
KURTOSIS       767.105   SKEWNESS       17.[illegible]   RANGE         9.000
MINIMUM          0.0     MAXIMUM         9.000

VALID CASES   11515      MISSING CASES       0
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VPARINC

                  ADJ CUM                  ADJ CUM                    ADJ CUM
     CODE   FREQ  PCT PCT      CODE  FREQ  PCT PCT      CODE   FREQ   PCT PCT

       0:  11370   99  99        2:     7   0 100
       1:    137    1 100        9:     1   0 100

MEAN            0.014    STD ERR           0.001      MEDIAN          [illegible]
MODE            0.0      STD DEV           [illegible] VARIANCE       [illegible]
KURTOSIS    130[illegible]44 SKEWNESS      [illegible] RANGE          [illegible]
MINIMUM         0.0      MAXIMUM           9.000

VALID CASES   11515      MISSING CASES     0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

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VSTD1040

                  ADJ CUM                  ADJ CUM                    ADJ CUM
     CODE   FREQ  PCT PCT      CODE  FREQ  PCT PCT      CODE   FREQ   PCT PCT

       0:  11408   99  99        2:     7   0 100
       1:     99    1 100        9:     1   0 100

MEAN            0.011    STD ERR           0.001      MEDIAN          [illegible]
MODE            0.0      STD DEV           0.134      VARIANCE        [illegible]
KURTOSIS     1812.754    SKEWNESS         31.685      RANGE           [illegible]
MINIMUM         0.0      MAXIMUM           [illegible]

VALID CASES   11515      MISSING CASES     0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

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VSTDINC

                  ADJ CUM                  ADJ CUM                    ADJ CUM
     CODE   FREQ  PCT PCT      CODE  FREQ  PCT PCT      CODE   FREQ   PCT PCT

       0:  11411   99  99        2:     7   0 100
       1:     96    1 100        9:     1   0 100

MEAN            0.010    STD ERR           0.001      MEDIAN          [illegible]
MODE            0.0      STD DEV           0.133      VARIANCE        [illegible]
KURTOSIS     1864.930    SKEWNESS         32.272      RANGE           9.000
MINIMUM         0.0      MAXIMUM           9.000

VALID CASES   11515      MISSING CASES     0
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VASSETS

                 ADJ CUM                           ADJ CUM                           ADJ CUM
   CODE    FREQ  PCT PCT       CODE     FREQ  PCT PCT       CODE     FREQ  PCT PCT

     0:   11459  100 100         2:        7    0 100
     1:      48    0 100         9:  [illegible]

MEAN            0.006        STD ERR           0.001       MEDIAN            0.002
MODE            0.0          STD DEV     [illegible]       VARIANCE    [illegible]
KURTOSIS     3146.091        SKEWNESS   45.[illegible]     RANGE       [illegible]
MINIMUM         0.0          MAXIMUM           9.000

VALID CASES     11515        MISSING CASES [illegible]
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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VINDEP

                 ADJ CUM                           ADJ CUM                           ADJ CUM
   CODE    FREQ  PCT PCT       CODE     FREQ  PCT PCT       CODE     FREQ  PCT PCT

     0:   11483  100 100         2:        7    0 100
     1:      24    0 100         9:        1    0 100

MEAN            0.004        STD ERR           0.001       MEDIAN            0.001
MODE            0.0          STD DEV     [illegible]       VARIANCE    [illegible]
KURTOSIS      436[illegible].822   SKEWNESS [illegible]    RANGE       [illegible]
MINIMUM         0.0          MAXIMUM           9.000

VALID CASES     11515        MISSING CASES     0
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VHHSIZE

                  ADJ  CUM                      ADJ  CUM                        ADJ  CUM
   CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT
     0:   11467  100  100        2:       7    0  100
     1:      40    0  100        9:       1    0  100

MEAN             0.005     STD ERR        0.001     MEDIAN            0.003
MODE             0.0       STD DEV        0.114     VARIANCE          0.013
KURTOSIS      3487.122     SKEWNESS      48.706     RANGE             9.000
MINIMUM          0.0       MAXIMUM        9.000

VALID CASES    11515       MISSING CASES      0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

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VOTHER1

                  ADJ  CUM                      ADJ  CUM                        ADJ  CUM
   CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT
     0.   11408   99   99        8.       1    0  100
     1.     105    1  100        9.       1    0  100

MEAN             0.011     STD ERR        0.001     MEDIAN            0.006
MODE             0.0       STD DEV        0.133     VARIANCE          0.018
KURTOSIS      1841.980     SKEWNESS      31.793     RANGE             9.000
MINIMUM          0.0       MAXIMUM        9.000

VALID CASES    11515       MISSING CASES      0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

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VOTHITYP

                  ADJ  CUM                      ADJ  CUM                        ADJ  CUM
   CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT      CODE    FREQ  PCT  PCT
     1:      52   72   72        6:       5    7   85        9.       8   11  100
     3:       3    4   76        7:       1    1   86
     4.       1    1   78        8.       2    3   89

                          M I S S I N G   D A T A
   CODE    FREQ                CODE    FREQ                CODE    FREQ
     0.   11443

MEAN             2.639     STD ERR        0.342     MEDIAN            1.192
MODE             1.000     STD DEV        2.904     VARIANCE          8.431
KURTOSIS         0.347     SKEWNESS       1.420     RANGE             8.000
MINIMUM          1.000     MAXIMUM        9.000
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VOTHER2

                ADJ CUM                      ADJ CUM                      ADJ CUM
    CODE   FREQ PCT PCT       CODE   FREQ PCT PCT      CODE   FREQ PCT PCT
     0:   11491 100 100         2:      2   0 100
     1:      16   0 100         9:      2   0 100

MEAN             0.004    STD ERR        [illegible]   MEDIAN         [illegible]
MODE             0.0      STD DEV        [illegible]   VARIANCE       [illegible]
KURTOSIS      3733.226    SKEWNESS       56.[illegible]   RANGE          [illegible]
MINIMUM    [illegible]    MAXIMUM        [illegible]

VALID CASES    11515       MISSING CASES       0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

RECORD REVIEW FORM TABULATIONS                                                                   PAGE  119

FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

VOTH2TYP

                ADJ CUM                      ADJ CUM                      ADJ CUM
    CODE   FREQ PCT PCT       CODE   FREQ PCT PCT      CODE   FREQ PCT PCT
     1:  [illegible] 17  17         4:      3 [illegible] [illegible]       8:      2   9 [illegible]
     3.      8  35  52         5.      4  17  83       9.      2   9 100

                        M I S S I N G   D A T A
    CODE   FREQ             CODE   FREQ                CODE   FREQ
     0.   11492

MEAN             3.913    STD ERR         0.457    MEDIAN          3.438
MODE             3.000    STD DEV         2.193    VARIANCE       [illegible]
KURTOSIS   [illegible]    SKEWNESS       [illegible]   RANGE          [illegible]
MINIMUM          1.000    MAXIMUM         9.000

VALID CASES        23      MISSING CASES 11492
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RECORD REVIEW FORM TABULATIONS                                                    09/23/79         PAGE  120

FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

INCONSIS

                ADJ  CUM                      ADJ  CUM                      ADJ  CUM
   CODE   FREQ  PCT  PCT     CODE   FREQ  PCT  PCT     CODE   FREQ  PCT  PCT
     1.     78   19   19       2.    327   81  100

                              M I S S I N G   D A T A
   CODE   FREQ               CODE   FREQ               CODE   FREQ

     0.  11110

MEAN          1.807     STD ERR       0.020     MEDIAN        [illegible]
MODE          2.000     STD DEV       0.395     VARIANCE      [illegible]
KURTOSIS      [illegible]     SKEWNESS      [illegible]     RANGE         [illegible]
MINIMUM       1.000     MAXIMUM       2.000

VALID CASES     405     MISSING CASES 11110
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
RECORD REVIEW FORM TABULATIONS                                                    09/23/79         PAGE  121

FILE    RRFORM    (CREATION DATE = 08/28/79)
SUBFILE   ALL

AGE

                ADJ  CUM                      ADJ  CUM                      ADJ  CUM
   CODE   FREQ  PCT  PCT     CODE   FREQ  PCT  PCT     CODE   FREQ  PCT  PCT
    17.    104    1    1      22.   1585   13   70      35.    323    3   [illegible]
    19.   2050   19   20      23.    734    7   77      45.     90    1  100
    20.   2167   20   41      24.    415    4   81      55.     20    0  100
    21.   1713  [illegible]  [illegible]     [illegible]  [illegible]   12   94     [illegible]  [illegible]  [illegible]  100

                              M I S S I N G   D A T A
   CODE   FREQ               CODE   FREQ               CODE   FREQ

     0.    887

MEAN         22.003     STD ERR       0.040     MEDIAN       21.000
MODE         20.000     STD DEV       4.173     VARIANCE     17.415
KURTOSIS     22.290     SKEWNESS      3.877     RANGE        [illegible]
MINIMUM      [illegible]     MAXIMUM      60.000

VALID CASES   10628     MISSING CASES   887
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STUDENT QUESTIONNAIRE FILE

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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTQ (CREATION DATE = 09/15/79)                              09/24/79        PAGE   25
SUBFILE   ALL

BIRTHMO   MONTH OF BIRTH

                                                     RELATIVE  ADJUSTED   CUM
CATEGORY LABEL                        CODE  ABSOLUTE   FREQ      FREQ     FREQ
                                              FREQ     [illegible] [illegible] [illegible]

                                       1.     1007      8.1       8.3      8.3
                                       [illegible]
                                       3.      985      7.9       8.1     24.8
                                       [illegible]
                                       5.      985      7.9       8.1     40.3
                                       [illegible]
                                       7.     1075      8.6       8.8     57.3
                                       [illegible]
                                       9.     1090      8.8       8.9     74.9
                                       [illegible]
                                      11.      909      7.3       7.5     91.7
                                       [illegible]
                                       0.      251      2.0     MISSING  100.0
                                            -------   -------   -------
                                    TOTAL    12432    [illegible] [illegible]

MEAN          6.564     STD ERR        0.031     MEDIAN        6.678
MODE         10.000     STD DEV    [illegible]   VARIANCE  [illegible]
KURTOSIS     -1.195     SKEWNESS   [illegible]   RANGE        11.000
MINIMUM       1.000     MAXIMUM       12.000

VALID CASES   12181     MISSING CASES   251
```

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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79          PAGE   25

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ADU

BIRTHYR    YEAR OF BIRTH

                    ADJ  CUM                            ADJ  CUM                            ADJ  CUM
   CODE      FREQ   PCT  PCT        CODE      FREQ      PCT  PCT        CODE      FREQ      PCT  PCT

     1.         3     0    0         25.        15        0    1         46.  [illegible] [illegible] [illegible]
     2.         1     0    0         26.        16        0    1         47.  [illegible] [illegible] [illegible]
     3.         1     0    0         27.        17        0    1         48.  [illegible] [illegible] [illegible]
     4.         2     0    0         28.  [illegible]     0    1         49.  [illegible] [illegible] [illegible]
     7.         1     0    0         29.  [illegible]     0    1         50.  [illegible] [illegible] [illegible]
     8.         3     0    0         30.        12        0    2         51.  [illegible] [illegible] [illegible]
     9.         3     0    0         31.        27        0    2         52.  [illegible] [illegible] [illegible]
    10.         4     0    0         32.  [illegible]     0    2         53.  [illegible] [illegible] [illegible]
    11.         5     0    0         33.        17        0    2         54.  [illegible] [illegible] [illegible]
    12.         1     0    0         34.        22        0    2         55.  [illegible] [illegible]   23
    13.         3     0    0         35.        24        0    2         56.  [illegible] [illegible]   29
    14.         3     0    0         36.  [illegible]     0    2         57.  [illegible] [illegible] [illegible]
    15.         2     0    0         37.        33        0    3         58.  [illegible] [illegible] [illegible]
    16.         2     0    0         38.        24        0    3         59.  [illegible] [illegible]   76
    18.         8     0    0         39.        44        0    4         60.  [illegible] [illegible]   90
    19.         8     0    0         40.  [illegible]     0    4         61.  [illegible] [illegible] [illegible]
    20.         6     0    0         41.        48        0    4         62.  [illegible] [illegible] [illegible]
    21.         4     0    0         42.        48        0    5         63.  [illegible] [illegible]  100
    22.        15     0    0         43.        66        1    5         64.  [illegible]      0      100
    23.        13     0    1         44.  [illegible]     1    6
    24.        17     0    1         45.        70        1    7

                                M I S S I N G   D A T A
   CODE      FREQ                   CODE      FREQ                  CODE      FREQ

     0.       277

MEAN          55.945      STD ERR           0.060      MEDIAN          56.859
MODE          59.000      STD DEV           6.563      VARIANCE        43.067
KURTOSIS   [illegible]    SKEWNESS    [illegible]      RANGE       [illegible]
MINIMUM        1.000      MAXIMUM          64.000

VALID CASES    12155      MISSING CASES    277
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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTQ (CREATION DATE = 09/15/79)                                09/24/79          PAGE  29
SUBFILE   ALL

MARITAL   MARITAL STATUS

                                          RELATIVE  ADJUSTED      CUM
                               ABSOLUTE     FREQ      FREQ        FREQ
CATEGORY LABEL          CODE     FREQ      (PCT)     (PCT)       (PCT)
NEVER MARRIED
                         1.     10043      80.8      81.0        81.0
MARRIED
                         2.    [illegible] [illegible] [illegible] 94.0
SEPARATED
                         3.       221       1.8       1.8        95.8
DIVORCED
                         4.       479       3.9       3.9        99.6
WIDOWED
                         5.        49       0.4       0.4       100.0

                         0.        40       0.3     MISSING     100.0
                                -------   -------   -------
                       TOTAL    12432     100.0     100.0

MEAN         1.296     STD ERR     0.006     MEDIAN       1.117
MODE         1.000     STD DEV     0.722     VARIANCE     0.521
KURTOSIS     7.971     SKEWNESS    2.645     RANGE        4.000
MINIMUM      1.000     MAXIMUM     5.000

VALID CASES  12392     MISSING CASES   40
```

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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTQ (CREATION DATE = 09/15/79)                                  09/26/79        PAGE   26
SUBFILE    ALL

RACE

                                              RELATIVE   ADJUSTED     CUM
CATEGORY LABEL              CODE   ABSOLUTE     FREQ       FREQ       FREQ
                                      FREQ      (PCT)      (PCT)      (PCT)
AMERICAN INDIAN
                             1.      223         1.8        1.8        1.8
ASIAN                        2.   [illegible]  [illegible]  [illegible]  [illegible]
BLACK
                             3.     1702        13.7       13.8       17.9
HISPANIC                     4.   [illegible]  [illegible]  [illegible]  [illegible]
WHITE
                             5.     9553        76.8       77.0      100.0
                             0.      129     [illegible]   MISSING   [illegible]
                                   ------      ------     ------
                           TOTAL   12432       100.0      100.0

MEAN          4.539    STD ERR      [illegible]    MEDIAN       [illegible]
MODE          5.000    STD DEV       0.937         VARIANCE      0.878
KURTOSIS      2.958    SKEWNESS     -1.953         RANGE         4.000
MINIMUM       1.000    MAXIMUM      [illegible]

VALID CASES   12303    MISSING CASES    129
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STUDENT QUESTIONNAIRE TABULATIONS

FILE     STUDENTQ  (CREATION DATE = 09/15/79)                                09/24/79          PAGE   30
SUBFILE   ALL

RESIDENT  FOR TUITION PURPOSES?

                                              RELATIVE   ADJUSTED      CUM
CATEGORY LABEL                      ABSOLUTE    FREQ       FREQ        FREQ
                             CODE     FREQ     (PCT)      (PCT)       (PCT)
NO
                              1.      6106      49.1       50.2        50.2
DISTRICT
                     [illegible]  [illegible] [illegible] [illegible] [illegible]
STATE
                              3.      4236      34.1       34.9        93.9
NON-STATE
                     [illegible]  [illegible] [illegible] [illegible] [illegible]
FOREIGN
                              5.        83       0.7        0.7       100.0

                     [illegible]       280  [illegible]   MISSING   [illegible]
                                   -------    -------    -------
                           TOTAL     12432     100.0      100.0

MEAN          1.975      STD ERR      [illegible]      MEDIAN        [illegible]
MODE          1.000      STD DEV      1.063            VARIANCE      [illegible]
KURTOSIS     -[illegible] SKEWNESS    [illegible]      RANGE         [illegible]
MINIMUM       1.000      MAXIMUM      [illegible]

VALID CASES   12152      MISSING CASES    280
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STUDENT QUESTIONNAIRE TABULATIONS                                           [illegible]          PAGE   31

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

LIVING     WHICH IS YOUR LIVING ARRANGEMENT ?

                                                  RELATIVE   ADJUSTED      CUM
                                        ABSOLUTE    FREQ       FREQ       FREQ
CATEGORY LABEL                  CODE      FREQ     (PCT)      (PCT)      (PCT)

UN-CAMPUS                        1.      4894      39.4       39.5       39.5

WITH PARENTS                [illegible] [illegible] [illegible] [illegible] [illegible]

UFF-CAMPUS                       3.      4330      34.8       34.9      100.0

                            [illegible] [illegible] [illegible]   MISSING  [illegible]
                                        -------    -------    -------
                               TOTAL    12432      100.0      100.0

MEAN           1.954     STD ERR     [illegible]     MEDIAN      [illegible]
MODE           1.000     STD DEV     [illegible]     VARIANCE    [illegible]
KURTOSIS      -1.648     SKEWNESS    [illegible]     RANGE       2.000
MINIMUM        1.000     MAXIMUM     [illegible]

VALID CASES   12390      MISSING CASES     42
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)                         09/24/79          PAGE  32
SUBFILE   ALL

DEPENDCY  ARE YOU DEPENDENT OR INDEPENDENT ?

                                                  RELATIVE  ADJUSTED     CUM
CATEGORY LABEL                     CODE  ABSOLUTE    FREQ      FREQ      FREQ
                                           FREQ     (PCT)     (PCT)     (PCT)
DEPENDENT
                                    1.     8776      70.6      71.3      71.3
INDEPENDENT
                                    2.  [illegible] [illegible] [illegible] 100.0
                                    0.      130       1.0   MISSING     100.0
                                        -------   -------   -------
                                 TOTAL [illegible]   100.0     100.0

MEAN          1.287       STD ERR        0.004       MEDIAN       1.201
MODE        [illegible]   STD DEV     [illegible]    VARIANCE   [illegible]
KURTOSIS   -[illegible]   SKEWNESS    [illegible]    RANGE      [illegible]
MINIMUM       1.000       MAXIMUM        2.000

VALID CASES   12302       MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTQ (CREATION DATE = 09/15/79)                                                    09/24/79          PAGE   33
SUBFILE   ALL

SUPPORT    SUPPORT ANYONE OTHER THAN YOURSELF ?

                                                       RELATIVE   ADJUSTED     CUM
CATEGORY LABEL                       CODE   ABSOLUTE     FREQ       FREQ       FREQ
                                               FREQ      (PCT)      (PCT)      (PCT)
YES
                                      1.     1747       14.1       14.2       14.2
NO
                                      2.     [illegible] [illegible] [illegible] 100.0

                                      0.      145        1.2      MISSING     100.0
                                            -------    -------    -------
                                   TOTAL    [illegible] 100.0     100.0

MEAN          1.858     STD ERR       0.003      MEDIAN        1.917
MODE          [illegible] STD DEV     [illegible] VARIANCE     [illegible]
KURTOSIS      [illegible] SKEWNESS    [illegible] RANGE         1.000
MINIMUM       1.000     MAXIMUM       2.000

VALID CASES   12287     MISSING CASES   145
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STUDENT QUESTIONNAIRE TABULATIONS                                                              09/24/79          PAGE   35

FILE    STUDENTS  (CREATION DATE = 09/15/79)
SUBFILE   ALL

CHILDREN  HOW MANY CHILDREN DO YOU SUPPORT ?

                                                  RELATIVE  ADJUSTED   CUM
CATEGORY LABEL                   CODE  ABSOLUTE   FREQ      FREQ       FREQ
                                       FREQ       (PCT)     (PCT)      (PCT)

                                  0.       332      2.7       19.9       19.9
                                  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
                                  2.       428      3.4       25.2       [illegible]
                                  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
                                  4.        66      0.5        3.9       97.9
                                  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
                                  6.         8      0.1        0.5       99.5
                                  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
                                  8.         2      0.0        0.1       99.8
                                  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
                                 10.         2      0.0        0.1      100.0
                                  [illegible]  [illegible]  [illegible]  MISSING  [illegible]
                                 99.        48      0.4     MISSING     100.0
                                        -------   -------    -------
                              TOTAL     12432     [illegible]  [illegible]

MEAN        1.504      STD ERR        0.031       MEDIAN        1.292
MODE        [illegible]  STD DEV      [illegible]  VARIANCE     [illegible]
KURTOSIS    [illegible]  SKEWNESS     [illegible]  RANGE        10.000
MINIMUM     0.0        MAXIMUM       10.000

VALID CASES     1699       MISSING CASES  10723
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FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

#OTHDEPS  HOW MANY OTHER DEPENDENTS DO YOU SUPPORT

                                             RELATIVE  ADJUSTED    CUM
                                   ABSOLUTE    FREQ      FREQ      FREQ
CATEGORY LABEL          CODE         FREQ     (PCT)     (PCT)     (PCT)

                          0.         1618      13.0      95.2      95.2

                          1.     [illegible] [illegible] [illegible] [illegible]

                          2.           18       0.1       1.1      99.3

                          3.            1  [illegible] [illegible] [illegible]

                          4.            3       0.0       0.2      99.6

                  [illegible]           1  [illegible] [illegible] [illegible]

                          7.            2       0.0       0.1      99.9

                         10.            1  [illegible] [illegible] [illegible]

                         98.        10685      85.9   MISSING     100.0

                         99.   [illegible] [illegible] MISSING   [illegible]
                                   ------    ------    ------
                         TOTAL      12432     100.0     100.0

MEAN            0.080    STD ERR     [illegible]    MEDIAN      [illegible]
MODE            0.0      STD DEV     [illegible]    VARIANCE    [illegible]
KURTOSIS      167.282    SKEWNESS        11.156     RANGE          10.000
MINIMUM         0.0      MAXIMUM     [illegible]

VALID CASES     1699     MISSING CASES 10733
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STUDENT QUESTIONNAIRE TABULATIONS                                                                    09/24/79          PAGE   38
FILE     STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE  ALL

PARINC    PARENT APPROX GROSS INCOME

                                                  RELATIVE   ADJUSTED      CUM
                                      ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                 CODE     FREQ       (PCT)      (PCT)      (PCT)
LESS THAN $1500                  2.      187        1.5        2.3        2.3
$1500-$2999                      3.  [illegible] [illegible] [illegible] [illegible]
$3000-$5900                      4.      591        4.8        7.3       12.9
$6000-$8999                      5.  [illegible] [illegible] [illegible] [illegible]
$9000-$11999                     6.      783        6.3        9.7       31.7
$12000-$14999                    7.  [illegible] [illegible] [illegible] [illegible]
$15000-$17999                    8.      773        6.2        9.6       51.2
$18000-$20999                    9.  [illegible] [illegible] [illegible] [illegible]
$21000-$24999                   10.      918        7.4       11.4       73.3
$25000-$29999                   11.  [illegible] [illegible] [illegible] [illegible]
$30000-$34999                   12.      463        3.7        5.8       87.1
$35000 OR MORE                  13.  [illegible] [illegible] [illegible]    100.0
                                 0.      359        2.9     MISSING      100.0
DONT KNOW                        1.  [illegible] [illegible]  MISSING      100.0
DECEASED                        14.      218        1.8     MISSING      100.0
                                       -------    -------    -------
                                TOTAL    12432      100.0      100.0

MEAN          8.292      STD ERR        0.034      MEDIAN         8.373
MODE         13.000      STD DEV  [illegible]      VARIANCE [illegible]
KURTOSIS     -0.993      SKEWNESS [illegible]      RANGE         11.000
MINIMUM       2.000      MAXIMUM       13.000

VALID CASES    8050      MISSING CASES   4382
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STUDENT QUESTIONNAIRE TABULATIONS                                          09/24/79          PAGE   39
FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

PARHH#     # PERSONS IN PARENTS HOUSEHOLD

                 ADJ  CUM                        ADJ  CUM                          ADJ  CUM
  CODE    FREQ   PCT  PCT       CODE     FREQ   PCT  PCT        CODE     FREQ     PCT  PCT
    1.     338     3    3         7.      532     5   95         13.        7       0  100
    2.    1140    11   14         8.      315     3   97         14.  [illegible]  0  100
    3.    2130    20   34         9.      161     2   98         15.        3       0  100
    4.    2468    23   58        10.  [illegible] [illegible] [illegible]  16.  [illegible]  0  100
    5.    2008    19   77        11.       37     0  100
    6.    1190    11   88        12.       21     0  100         18.        2       0  100

                                  M I S S I N G   D A T A
  CODE    FREQ                   CODE     FREQ                    CODE     FREQ
    0.    1537                    99.      382

MEAN            4.389      STD ERR          0.019       MEDIAN         4.176
MODE            4.000      STD DEV      [illegible]     VARIANCE    [illegible]
KURTOSIS        2.349      SKEWNESS         0.993       RANGE         17.000
MINIMUM         1.000      MAXIMUM         18.000

VALID CASES     10542      MISSING CASES   [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79       PAGE  40

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

STUHH#    # PERSONS IN STUDENTS HOUSEHOLD

                                          RELATIVE   ADJUSTED    CUM
                               ABSOLUTE     FREQ       FREQ      FREQ
CATEGORY LABEL          [illegible]

                          1.     1107        8.9       31.8      31.8
                    [illegible]
                          3.      576        4.6       16.6      74.4
                    [illegible]
                          5.      244        2.0        7.0      95.4
                    [illegible]
                          7.       34        0.3        1.0      99.1
                    [illegible]
                          9.        7        0.1        0.2      99.7
                    [illegible]
                         11.        2        0.0        0.1     100.0
                    [illegible]
                          0.     8786       70.7    MISSING     100.0
                    [illegible]
                               -------    -------    -------
                     TOTAL     12432      100.0      100.0

MEAN           2.558     STD ERR          0.027     MEDIAN         [illegible]
MODE           1.000     STD DEV          1.579     VARIANCE       [illegible]
KURTOSIS       1.996     SKEWNESS         1.215     RANGE          11.000
MINIMUM        1.000     MAXIMUM    [illegible]

VALID CASES     3478     MISSING CASES   8954
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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTQ (CREATION DATE = 09/15/79)                              09/24/79          PAGE  42
SUBFILE   ALL

STUPSE#   # PERS IN STUDENT HOUSE IN COLLEGE

                                              RELATIVE   ADJUSTED      CUM
                                  ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL              CODE    FREQ      (PCT)      (PCT)       (PCT)

                              0.     303        2.4        8.7         8.7
                              1. [illegible] [illegible] [illegible] [illegible]
                              2.     455        3.7       13.1        96.9
                              3. [illegible] [illegible] [illegible] [illegible]
                              4.      31        0.2        0.9        99.6
                              5. [illegible] [illegible] [illegible] [illegible]
                              6.       4        0.0        0.1        99.8
                              7. [illegible] [illegible] [illegible] [illegible]
                              9.       3        0.0        0.1       100.0
                             98. [illegible] [illegible]  MISSING  [illegible]
                             99.     178        1.4     MISSING      100.0
                                  -------    -------    -------
                            TOTAL [illegible] [illegible] [illegible]

MEAN          1.131     STD ERR        0.012      MEDIAN       1.050
MODE          1.000     STD DEV  [illegible]      VARIANCE [illegible]
KURTOSIS     23.726     SKEWNESS [illegible]      RANGE        9.000
MINIMUM       0.0       MAXIMUM        9.000

VALID CASES   3468      MISSING CASES [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ  (CREATION DATE = 09/15/79)                                             09/24/79          PAGE  83
SUBFILE   ALL

PAYPSE     DO PARENTS PAY FOR SIBLINGS SCHOOL?

                                                  RELATIVE   ADJUSTED      CUM
CATEGORY LABEL                        ABSOLUTE      FREQ       FREQ        FREQ
                                CODE    FREQ       (PCT)      (PCT)       (PCT)
YES
                                 1.      3252       26.2       26.6        26.6
NO
                                 2.  [illegible]  [illegible] [illegible] [illegible]
NOT APPLICABLE
                                 3.      2723       21.9       22.3       100.0

                                 0.       203        1.6     MISSING      100.0
                                       ------     ------     ------
                               TOTAL    12432      100.0      100.0

MEAN            1.957       STD ERR      [illegible]      MEDIAN      [illegible]
MODE            2.000       STD DEV         0.698         VARIANCE       0.487
KURTOSIS       -0.946       SKEWNESS        0.059         RANGE          2.000
MINIMUM         1.000       MAXIMUM      [illegible]

VALID CASES     12229       MISSING CASES    203
```

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STUDENT QUESTIONNAIRE TABULATIONS                                                  [illegible]          PAGE [illegible]

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

PAYPSE#   HOW MANY SIBLINGS DO THEY ASSIST?      ?

                                                   RELATIVE   ADJUSTED       CUM
CATEGORY LABEL                   CODE   ABSOLUTE     FREQ       FREQ         FREQ
                                          FREQ      (PCT)      (PCT)        (PCT)

                                  1.      2085      16.8       66.0         66.0
                                  [illegible]
                                  3.       209       1.7        6.6         97.4
                                  [illegible]
                                  5.        13       0.1        0.4         99.7
                                  [illegible]
                                  7.         2       0.0        0.1         99.8
                                  [illegible]
                                 10.         1       0.0        0.0         99.9
                                  [illegible]
                                 12.         1       0.0        0.0        100.0
                                  [illegible]
                                 98.      9100      73.8     MISSING       100.0
                                  [illegible]
                                         ------    ------     ------
                               TOTAL     12432     100.0      100.0

MEAN           1.478      STD ERR     [illegible]      MEDIAN       [illegible]
MODE           1.000      STD DEV     [illegible]      VARIANCE     [illegible]
KURTOSIS      30.988      SKEWNESS    [illegible]      RANGE            12.000
MINIMUM        1.000      MAXIMUM     [illegible]

VALID CASES     3161      MISSING CASES   9271
```

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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTO (CREATION DATE = 09/15/79)                                   09/24/79        PAGE  [illegible]
SUBFILE  ALL

TALSEARC  DID YOU PARTICIPATE IN TALENT SEARCH ?

                                                  RELATIVE   ADJUSTED     CUM
CATEGORY LABEL                 CODE   ABSOLUTE      FREQ       FREQ       FREQ
                                        FREQ       (PCT)      (PCT)      (PCT)

                                 0.    12263        98.6       98.6       98.6

                                 1.    [illegible]  [illegible] [illegible] [illegible]
                                      -------     -------    -------
                               TOTAL   12432       100.0      100.0

MEAN          0.014     STD ERR         0.001        MEDIAN          0.007
MODE          0.0       STD DEV         0.116        VARIANCE        0.013
KURTOSIS     68.604     SKEWNESS        8.402        RANGE           1.000
MINIMUM       0.0       MAXIMUM         1.000

VALID CASES   12432      MISSING CASES    0
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STUDENT QUESTIONNAIRE TABULATIONS                                                   09/24/79        PAGE   47

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

SPECSERV  DID YOU PARTICIPATE IN SPEC SER PROGRAM

                                                 RELATIVE   ADJUSTED     CUM
                                    ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL            [illegible]

                             0.     12078        97.2       97.2       97.2

                             [illegible]
                                   -------     -------    -------
                           TOTAL    12432       100.0      100.0

MEAN          0.028     STD ERR    [illegible]     MEDIAN      [illegible]
MODE          0.0       STD DEV    [illegible]     VARIANCE    [illegible]
KURTOSIS     30.161     SKEWNESS   [illegible]     RANGE       1.000
MINIMUM       0.0       MAXIMUM    [illegible]

VALID CASES   12432     MISSING CASES     0
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STUDENT QUESTIONNAIRE TABULATIONS                                                  09/24/79          PAGE   83
FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

HSCOUNSL   DID YOU GET FIN AID COUNSELING IN HS ?

                                                    RELATIVE   ADJUSTED     CUM
                                         ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE      FREQ      (PCT)      (PCT)      (PCT)
YES
                                   1.      3536       28.4       28.8       28.8
NO
                                   2.      8743       70.[illegible]  [illegible]  [illegible]
                                   0.       153        1.2    MISSING      100.0
                                         -------    -------    -------
                                 TOTAL    12432     [illegible]  [illegible]

MEAN            1.712     STD ERR          0.004      MEDIAN          1.798
MODE        [illegible]   STD DEV     [illegible]     VARIANCE    [illegible]
KURTOSIS       -1.123     SKEWNESS        -0.937      RANGE       [illegible]
MINIMUM         1.000     MAXIMUM          2.000

VALID CASES    12279      MISSING CASES    153
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231

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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)                                   [illegible]          PAGE  [illegible]
SUBFILE   ALL

HSGPA      WHAT WAS YOUR HS GRADE PT AVERAGE ?

                                                 RELATIVE   ADJUSTED      CUM
                                     ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL               CODE      FREQ       (PCT)      (PCT)       (PCT)

H.S. EQUIVALENCY               1.       428        3.4        3.5         3.5

MOSTLY A'S                     2.   [illegible] [illegible] [illegible] [illegible]

HALF A'S HALF B'S              3.      3269       26.3       26.5     [illegible]

MOSTLY B'S                     4.   [illegible] [illegible] [illegible] [illegible]

HALF B'S HALF C'S              5.      2389       19.2       19.4        91.5

MOSTLY C'S                     6.   [illegible] [illegible] [illegible] [illegible]

HALF C'S HALF D'S              7.       177        1.4        1.4         99.0

MOSTLY D'S                     8.   [illegible] [illegible] [illegible] [illegible]

MOSTLY BELOW D'S               9.         5        0.0        0.0        100.0

                               0.   [illegible] [illegible]  MISSING  [illegible]
                                     ------     ------     ------
                             TOTAL    12432      100.0      100.0

MEAN          3.611     STD ERR    [illegible]     MEDIAN     [illegible]
MODE          3.000     STD DEV    [illegible]     VARIANCE   [illegible]
KURTOSIS     -0.483     SKEWNESS      0.271        RANGE      [illegible]
MINIMUM       1.000     MAXIMUM    [illegible]

VALID CASES   12345     MISSING CASES    87
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TUDENT QUESTIONNAIRE TABULATIONS                                                  09/24/79        PAGE   50

ILE    STUDENTU  (CREATION DATE = 09/15/79)
UBFILE    ALL

ORK        DO YOU WORK WHILE ATTENDING SCHOOL ?

                                                          RELATIVE   ADJUSTED     CUM
                                             ABSOLUTE       FREQ       FREQ       FREQ
ATEGORY LABEL                      CODE        FREQ        (PCT)      (PCT)      (PCT)

ES                                   1.        5024         40.4       41.8       41.8

O                                    2.   [illegible]  [illegible] [illegible]  100.0

                                     0.         240          1.9    MISSING      100.0
                                             -------      -------    -------
                                    TOTAL [illegible]      100.0      100.0

EAN          1.588       STD ERR        0.004          MEDIAN        1.650
ODE          2.000       STD DEV  [illegible]          VARIANCE [illegible]
URTOSIS     -1.873       SKEWNESS      -0.357          RANGE         1.000
INIMUM       1.000       MAXIMUM        2.000

ALID CASES   12192       MISSING CASES    240
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STUDENT QUESTIONNAIRE TABULATIONS                                      [illegible]          PAGE  51

FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE  ALL

WORKHRS    # HRS WORK PER WK WHILE ATT SCHOOL ?

                                           RELATIVE   ADJUSTED     CUM
                              ABSOLUTE       FREQ       FREQ       FREQ
CATEGORY LABEL        CODE      FREQ        (PCT)      (PCT)      (PCT)

                        1.       288         2.3        5.9        5.9
                        6.       779     [illegible] [illegible] [illegible]
                       11.       746         6.0       15.8       37.0
                       16.   [illegible] [illegible] [illegible] [illegible]
                       21.       543         4.4       11.1       72.4
                   [illegible] [illegible] [illegible] [illegible] [illegible]
                       31.       190         1.5        3.9       83.7
                   [illegible] [illegible] [illegible] [illegible] [illegible]
                       41.       139         1.1        2.8       99.3
                   [illegible] [illegible] [illegible] [illegible] [illegible]
                       98.      7408        59.6    MISSING      100.0
                   [illegible] [illegible] [illegible] [illegible] [illegible]
                             -------     -------    -------
                     TOTAL     12432       100.0      100.0

MEAN          18.157     STD ERR        0.159     MEDIAN        16.176
MODE          16.000     STD DEV       11.165     VARIANCE     124.667
KURTOSIS      -0.473     SKEWNESS       0.572     RANGE         50.000
MINIMUM        1.000     MAXIMUM       51.000

VALID CASES     4903     MISSING CASES  7529
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTU (CREATION DATE = 09/15/79)                                   09/24/79            PAGE  52
SUBFILE  ALL

WORKPLAC  DID SCHOOL ASSIST IN FINDING JOB ?

                                                 RELATIVE  ADJUSTED    CUM
CATEGORY LABEL                 CODE  ABSOLUTE     FREQ       FREQ      FREQ
                                       FREQ      (PCT)      (PCT)     (PCT)
YES
                                 1.      777        6.3       15.7      15.7
NO
                                 2.  [illegible] [illegible] [illegible] [illegible]

                                 0.     7408       59.6    MISSING     100.0

                                 9.  [illegible] [illegible] MISSING  [illegible]
                                       -------    -------    -------
                              TOTAL    12432      100.0      100.0

EAN          1.843     STD ERR        0.005     MEDIAN      [illegible]
ODE          2.000     STD DEV        0.364     VARIANCE    0.132
URTOSIS      1.553     SKEWNESS      -1.885     RANGE       1.000
INIMUM       1.000     MAXIMUM    [illegible]

ALID CASES    4945      MISSING CASES  7487
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FILE     STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

WORKSHR    HOW MUCH DO YOU EARN PER HOUR ?

                      ADJ  CUM                      ADJ  CUM                      ADJ  CUM
    CODE     FREQ  PCT  PCT       CODE    FREQ  PCT  PCT       CODE    FREQ  PCT  PCT

    1.00       13    0    0       2.50     145
[illegible]
                                  3.00     639   14   53
    2.49        3    0    8       3.01       2    0   53       3.53       2    0   71
```

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STUDENT QUESTIONNAIRE TABULATIONS                                                09/24/79        PAGE   5[illegible]
ILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE  ALL

ORKSHR    HOW MUCH DO YOU EARN PER HOUR ?

                     ADJ  CUM                           ADJ  CUM                             ADJ  CUM
  CODE        FREQ   PCT  PCT     CODE        FREQ      PCT  PCT     CODE        FREQ        PCT  PCT

  3.54           4     0   71     4.07           3        0   82     [illegible]
  3.55          17     0   71     4.08     [illegible]               [illegible]
  3.56   [illegible]   0   72     4.09     [illegible]               [illegible]
  3.57   [illegible]   0   72     [illegible]                        [illegible]
  3.60          20     0   72     [illegible]                        [illegible]
  3.61   [illegible]   0   73     [illegible]                        [illegible]
  3.62   [illegible]   0   73     [illegible]                        [illegible]
  3.63   [illegible]   0   73     [illegible]                        [illegible]
  3.64   [illegible]   0   73     [illegible]                        [illegible]
  3.65          15     0   73     4.16     [illegible]               [illegible]
  3.67   [illegible]   0   73     [illegible]                        [illegible]
  3.68   [illegible]   0   73     [illegible]                        [illegible]
  3.69   [illegible]   0   73     [illegible]                        [illegible]
  3.70   1[illegible]  0   73     4.23     [illegible]    0   83     [illegible]
  3.71   [illegible]   0   73     4.25           3                   [illegible]
  3.72   [illegible]   0   73     [illegible]                        [illegible]
  3.73   [illegible]   0   73     [illegible]                        [illegible]
  3.74           3     0   73     4.30           6        0   84     [illegible]
  3.75   7[illegible]  2   75     [illegible]                        [illegible]
  3.76   [illegible]   0   75     [illegible]                        [illegible]
  3.78   [illegible]   0   75     4.34     [illegible]               [illegible]
  3.79           3     0   75     4.35           1                   [illegible]
  3.80   1[illegible]  0   76     [illegible]                        [illegible]
  3.81   [illegible]   0   76     [illegible]                        [illegible]
  3.82   [illegible]   0   76     4.39     [illegible]               [illegible]  116
  3.83           4     0   76     4.40     [illegible]               [illegible]
  3.85   1[illegible]  0   76     [illegible]                        [illegible]
  3.86   [illegible]   0   76     [illegible]                        [illegible]
  3.88   [illegible]   0   76     [illegible]                        [illegible]
  3.89   [illegible]   0   76     4.44           2                   [illegible]
  3.90   2[illegible]  0   77     4.45     [illegible]               [illegible]
  3.93   [illegible]   0   77     [illegible]                        [illegible]
  3.94   [illegible]   0   77     [illegible]                        [illegible]
  3.95           4     0   77     4.50          63            86     [illegible]
  3.96           1     0   77     [illegible]                        [illegible]
  3.97   [illegible]   0   77     [illegible]                        [illegible]
  4.00   21[illegible] 5   82     [illegible]                        [illegible]
  4.01   [illegible]   0   82     4.59     [illegible]               [illegible]
  4.02           2     0   82     4.60     [illegible]               [illegible]
  4.03           3     0   82     [illegible]                        [illegible]
  4.04           3     0   82     [illegible]                        [illegible]
  4.05           4     0   82     4.64     [illegible]               [illegible]
  4.06           1     0   82     4.65           1        0   87     5.31   [illegible]
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TUDENT QUESTIONNAIRE TABULATIONS                                                  09/24/79          PAGE  55
ILE    STUDENTU (CREATION DATE = 09/15/79)
UBFILE   ALL

ORKSHR   HOW MUCH DO YOU EARN PER HOUR ?

                ADJ CUM                            ADJ CUM                              ADJ CUM
   CODE   FREQ  PCT PCT          CODE      FREQ    PCT PCT          CODE       FREQ    PCT PCT

   5.33      1    0  91          6.33          2     0  95          7.35          [illegible]  97
   5.34      1    0  92          6.34          2     0  95          [illegible]   [illegible]
   5.35      3    0  92          6.35          2     0  95          7.50         28   [illegible]
   5.37      1    0  92          [illegible]
   5.38      2    0  92          [illegible]
   5.39      2    0  92          [illegible]
   5.40      1    0  92          [illegible]
   5.41      2    0  92          [illegible]
   5.43      2    0  92          [illegible]
   5.45      3    0  92          [illegible]
   5.50     16    0  92          6.50         15     0  95          [illegible]
   5.52      1    0  92          [illegible]
   5.54      1    0  92          [illegible]
   5.55      1    0  92          [illegible]
   5.56      1    0  92          [illegible]
   5.60      3    0  92          [illegible]
   5.65      2    0  93          [illegible]
   5.67      2    0  93          [illegible]                        8.00          2   [illegible]
   5.68      1    0  93          [illegible]
   5.69      1    0  93          [illegible]
   5.70      6    0  93          [illegible]
   5.72      1    0  93          [illegible]
   5.75      3    0  93          [illegible]
   5.76      2    0  93          [illegible]
   5.77      1    0  93          [illegible]
   5.78      1    0  93          6.92          2     0  96
   5.80      4    0  93          6.95   [illegible]
   5.85      3    0  93          [illegible]  21
   5.87      2    0  93          [illegible]
   5.89      1    0  93          [illegible]
   5.92      1    0  93          [illegible]
   5.98      1    0  93          [illegible]
   6.00     40    0  94          [illegible]
   6.02      2    0  94          [illegible]
   6.03      1    0  94          [illegible]
   6.08      1    0  94          [illegible]
   6.12      2    0  94          [illegible]
   6.14      2    0  94          [illegible]                        9.00         14   [illegible]
   6.15      1    0  94          [illegible]
   6.18      1    0  94          [illegible]
   6.20      2    0  95          [illegible]
   6.25      9    0  95          [illegible]
   6.30      2    0  95          7.35          1     0  97          9.35          1     0  99
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STUDENT QUESTIONNAIRE TABULATIONS
FILE     STUDENTQ (CREATION DATE = 09/15/79)                                                   09/24/79          PAGE   57
SUBFILE   ALL

CWS        DO YOU PARTICIPATE IN CWS ?

                                                     RELATIVE   ADJUSTED      CUM
CATEGORY LABEL                   CODE    ABSOLUTE      FREQ       FREQ        FREQ
                                           FREQ        (PCT)      (PCT)       (PCT)
YES                               1.       2084        16.8       17.1        17.1
NO                                2.      10113        81.0       82.9       100.0
                                  0.        235         1.9     MISSING      100.0
                                          -------     -------    -------
                                 TOTAL    12432       100.0      100.0

MEAN        1.829      STD ERR        0.003      MEDIAN        1.897
MODE        2.000      STD DEV        [illegible]      VARIANCE      [illegible]
KURTOSIS    1.050      SKEWNESS      -1.749      RANGE         1.000
MINIMUM     1.000      MAXIMUM        2.000

VALID CASES   12197    MISSING CASES   235
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79          PAGE  58

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

CWSHRS     # HRS PER WK YOU PARTICIPATE IN CWS ?

                                                    RELATIVE   ADJUSTED      CUM
                                         ABSOLUTE     FREQ       FREQ        FREQ
CATEGORY LABEL                  [illegible]

                                  1.       200        1.6       10.1        10.1

                        [illegible]

                                 11.       584        4.7       29.4        80.3

                        [illegible]

                                 21.        20        0.2        1.0        98.7

                        [illegible]

                                 31.         4        0.0        0.2        99.4

                        [illegible]

                                 98.     10348       83.2      MISSING     100.0

                        [illegible]
                                        -------     -------    -------
                              TOTAL     12432      100.0      100.0

MEAN            8.389        STD ERR        0.111           MEDIAN       [illegible]
MODE            6.000        STD DEV        4.944           VARIANCE     [illegible]
KURTOSIS        6.033        SKEWNESS       1.616           RANGE        35.000
MINIMUM         1.000        MAXIMUM        [illegible]

VALID CASES     1984         MISSING CASES 10448
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79          PAGE   60

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

MEAN          [illegible]     [illegible]          [illegible]     [illegible]          [illegible]
MODE           2.900          STD DEV               0.352           VARIANCE             0.124
KURTOSIS       6.649          SKEWNESS              1.110           RANGE                4.950
MINIMUM        1.050          MAXIMUM               6.000

VALID CASES     1942          MISSING CASES 10490
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79          PAGE   59

FILE    STUVENTO (CREATION DATE = 09/15/79)
SUBFILE   ALL

C=SSHR     HOW MUCH DO YOU EARN PER HR IN CWS ?

                      ADJ CUM                         ADJ CUM                         ADJ CUM
    CODE      FREQ  PCT PCT        CODE      FREQ  PCT PCT        CODE      FREQ  PCT PCT

    1.05         1    0   0        [illegible]
    [illegible]
    2.50        22    1   3
    2.51         2    0   3

                                 M I S S I N G   D A T A
    CODE      FREQ                 CODE      FREQ                 CODE      FREQ
   98.00     10348                99.00       142
```

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STUDENT QUESTIONNAIRE TABULATIONS                                                          09/26/79      PAGE   61

FILE    STUDENTO (CREATION DATE = 09/15/79)
SUBFILE   ALL

SUMWORK    DID YOU WORK DURING THE PAST SUMMER ?

                                                        RELATIVE   ADJUSTED    CUM
CATEGORY LABEL                      CODE    ABSOLUTE      FREQ       FREQ      FREQ
                                             FREQ        (PCT)      (PCT)     (PCT)

YES                                   1.     8941       71.9       73.8      73.8

NO                                    2.     3170      [illegible] [illegible] [illegible]

                                      0.      321        2.6     MISSING    100.0
                                           -------    -------    -------
                                    TOTAL   12432      100.0      100.0

MEAN          1.262      STD ERR       0.004      MEDIAN        1.177
MODE          1.000      STD DEV    [illegible]   VARIANCE   [illegible]
KURTOSIS   [illegible]   SKEWNESS   [illegible]   RANGE         1.000
MINIMUM       1.000      MAXIMUM       2.000

VALID CASES   12111      MISSING CASES    321
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79          PAGE  82

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

SUMWSS    TOTAL WORK STUDY EARNINGS LAST SUMMER ?

                                                RELATIVE   ADJUSTED     CUM
                                     ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                [illegible]

                              0.      7170        57.7       87.4       87.4

                       [illegible]

                            201.       219         1.8        2.7       91.1

                       [illegible]

                            701.       217         1.7        2.0       95.1

                       [illegible]

                           1501.        83         0.7        1.0       98.7

                       [illegible]

                           3001.        53         0.4        0.6      100.0

                       [illegible]

                           9999.       739         5.9      MISSING    100.0
                                    -------     -------    -------
                       [illegible]

MEAN          104.210      STD ERR          4.139      MEDIAN         0.072
MODE          [illegible]  [illegible]                 [illegible]
KURTOSIS       27.595      [illegible]                 RANGE          [illegible]
MINIMUM         0.0        MAXIMUM       3001.000

VALID CASES    8202      MISSING CASES   [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                                  09/24/79        PAGE  8[illegible]

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

SUMNOWSS  WHAT WERE NON-CWS SUMMER EARNINGS?

                                                         RELATIVE   ADJUSTED    CUM
                                             ABSOLUTE      FREQ       FREQ      FREQ
CATEGORY LABEL                     CODE        FREQ       (PCT)      (PCT)     (PCT)

                                      0.        819         6.6       10.0      10.0

                                      1.   [illegible]  [illegible] [illegible] [illegible]

                                    201.       1090         8.8       13.3      26.3

                             [illegible]   [illegible]  [illegible] [illegible] [illegible]

                                    701.       1600        12.9       19.5      54.9

                                   1001.   [illegible]  [illegible] [illegible] [illegible]

                                   1501.        896         7.2       10.9      85.4

                                   2001.   [illegible]  [illegible] [illegible] [illegible]

                                   3001.        462         3.7        5.6     100.0

                                   9998.   [illegible]  [illegible]   MISSING  100.0

                                   9999.        732         5.9       MISSING  100.0
                                            -------     -------      -------
                                   TOTAL   [illegible]  [illegible] [illegible]

MEAN          916.907     STD ERR        [illegible]       MEDIAN        [illegible]
MODE         1001.000     STD DEV        [illegible]       VARIANCE      [illegible]
KURTOSIS    [illegible]   SKEWNESS       [illegible]       RANGE         3001.000
MINIMUM         0.0       MAXIMUM        3001.000

VALID CASES    [illegible]     MISSING CASES    [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/28/79          PAGE  66

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

CLASS      WHAT IS YOUR CURRENT CLASS LEVEL?

                                                     RELATIVE   ADJUSTED    CUM
                                         ABSOLUTE      FREQ       FREQ      FREQ
CATEGORY LABEL                  [illegible]
FRESHMAN                           1.     5020        40.4       41.1      41.1
SOPHOMORE                       [illegible]
JUNIOR                             3.     1992        16.0       16.3      88.7
SENIOR                          [illegible]
OTHER                              5.      386         3.1        3.2      99.0
                                [illegible]
                                  12.       17         0.1        0.1      99.6
                                [illegible]
                                  14.       24         0.2        0.2      99.9
                                [illegible]
                                  16.        2         0.0        0.0     100.0
                                [illegible]
                                        -------     -------    -------
                              TOTAL     12432       100.0      100.0

MEAN          2.215     STD ERR      0.014     MEDIAN      [illegible]
MODE          1.000     STD DEV      1.578     VARIANCE    [illegible]
KURTOSIS     19.334     SKEWNESS     3.279     RANGE       15.000
MINIMUM       1.000     MAXIMUM     16.000

VALID CASES   12218      MISSING CASES   214
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

OTHCLASS  OTHER CLASS LEVEL

                                         RELATIVE   ADJUSTED      CUM
                             ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL        CODE     FREQ       (PCT)      (PCT)      (PCT)

                        0.    12261       98.6       98.7       98.7
     Special            1.   [illegible]  [illegible] [illegible] [illegible]
     2 yr NT            2.        5        0.0        0.0       98.9
     [illegible]        3.   [illegible]  [illegible] [illegible] [illegible]
     2nd Degree         4.       17        0.1        0.1       99.3
     Graduate           5.   [illegible]  [illegible] [illegible] [illegible]
     Grad student       6.        2        0.0        0.0       99.6
     HS student         7.   [illegible]  [illegible] [illegible] [illegible]
     No [illegible]     8.        8        0.1        0.1       99.9
     [illegible]        9.   [illegible]  [illegible] [illegible] [illegible]
     [illegible]       10.       11        0.1        0.1      100.0
     [illegible]       99.   [illegible]  [illegible]  MISSING  [illegible]
                             ------     ------     ------
                   TOTAL      12432      100.0      100.0

MEAN          0.063     STD ERR      [illegible]     MEDIAN       [illegible]
MODE          0.0       STD DEV      [illegible]     VARIANCE     [illegible]
KURTOSIS    134.060     SKEWNESS     [illegible]     RANGE        10.000
MINIMUM       0.0       MAXIMUM      [illegible]

VALID CASES   12426     MISSING CASES      6
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STUDENT QUESTIONNAIRE TABULATIONS                                                09/24/79        PAGE  55

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   [illegible]

STATUS     ARE YOU A CONTINUING OR TRANSFER STUDENT

                                                  RELATIVE  ADJUSTED    CUM
                                       ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL                [illegible]  [illegible]  [illegible]  [illegible]  [illegible]

                                 0.      4421      35.6      35.6      35.6

CONTINUING                      [illegible]  [illegible]  [illegible]  [illegible]  [illegible]

TRANSFER                         2.      1230       9.9       9.9     100.0
                                       -------   -------   -------
                             [illegible]  [illegible]  [illegible]  [illegible]

MEAN           0.743     STD ERR          0.006     MEDIAN          0.765
MODE          [illegible]     [illegible]          [illegible]     [illegible]          [illegible]
KURTOSIS      -0.632     SKEWNESS         [illegible]     RANGE           2.000
MINIMUM        0.0       MAXIMUM          2.000

VALID CASES   [illegible]     [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                             09/24/79      PAGE   87

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

CARD2

                                                 RELATIVE  ADJUSTED     CUM
                                       ABSOLUTE    FREQ      FREQ      FREQ
CATEGORY LABEL                 CODE      FREQ     (PCT)     (PCT)     (PCT)

                                 2.     12432     100.0     100.0     100.0
                                        -------   -------   -------
                              TOTAL     12432     100.0     100.0

MEAN          2.000     STD ERR        0.0          MEDIAN          2.000
MODE          2.000     STD DEV        0.0          VARIANCE        0.0
RANGE         0.0       MINIMUM        2.000        MAXIMUM         2.000

VALID CASES   12432     MISSING CASES     0
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STUDENT QUESTIONNAIRE TABULATIONS                                                  09/24/79         PAGE   68

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

MAJOR      WHAT AREA OF STUDY ARE YOU PURSUING ?

               ADJ CUM                       ADJ CUM                        ADJ CUM
  CODE    FREQ PCT P,T      CODE     FREQ PCT PCT      CODE     FREQ PCT PCT

   1.      332   3   3       8.      838   7  60       15.    [illegible]
   2.      420   3   6       9.      278   2  62       16.    [illegible]
   3.     2501  20  27      10.      480   4  66       17.      632   5  96
   4.  [illegible]          11.  [illegible]           [illegible]
   5.      293   2  37      12.      651   5  73       [illegible]
   6.     1335  11  48      13.      792   6  80       23.      118   1 100
   7.      645   5  53      14.      218   2  81

                          M I S S I N G   D A T A
  CODE    FREQ                CODE    FREQ               CODE    FREQ

   0.      211

MEAN        [illegible]   STD ERR     [illegible]   MEDIAN      [illegible]
MODE            3.000     STD DEV     [illegible]   VARIANCE    [illegible]
KURTOSIS       -0.573     SKEWNESS    [illegible]   RANGE           22.000
MINIMUM         1.000     MAXIMUM          23.000

VALID CASES    12221      MISSING CASES    211
```

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STUDENT QUESTIONNAIRE TABULATIONS                                                          09/24/79        PAGE  [illegible]

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

UTHMAJOR  OTHER AREA OF STUDY

                                                   RELATIVE  ADJUSTED    CUM
                                      ABSOLUTE       FREQ      FREQ      FREQ
CATEGORY LABEL                 CODE     FREQ        (PCT)     (PCT)     (PCT)

                                0.     12017        96.7      96.9      96.9

[illegible]

                                3.       170         1.4       1.4      99.6

[illegible]

                                5.         3         0.0       0.0      99.7

[illegible]

                                7.         1         0.0       0.0      99.7

[illegible]

                                9.         5         0.0       0.0      99.9

[illegible]

                               99.        27         0.2   MISSING     100.0
                                       -------     -------   -------
                              TOTAL    [illegible]  [illegible]  [illegible]

MEAN          0.085        STD ERR          0.005        MEDIAN          0.016
MODE          0.0          STD DEV     [illegible]       VARIANCE   [illegible]
KURTOSIS    129.393        SKEWNESS        10.323        RANGE          10.000
MINIMUM       0.0          MAXIMUM         10.000

VALID CASES    12909       MISSING CASES      27
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STUDENT QUESTIONNAIRE TABULATIONS

FILE     STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

LOAD       WHAT COURSE LOAD ARE YOU CARRYING ?

                                                  RELATIVE   ADJUSTED     CUM
                                       ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                 CODE      FREQ      (PCT)      (PCT)      (PCT)

UNDER HALF-TIME                  1.       303        2.4        2.5        2.5

HALF-TIME                        2.  [illegible] [illegible] [illegible] [illegible]

THREE-QUARTER TIME               3.       614        4.9        5.1       12.0

FULL-TIME                        4.  [illegible] [illegible] [illegible] [illegible]

                                 0.       283        2.3    MISSING      100.0
                                        -------    -------    -------
                                 TOTAL [illegible] [illegible] [illegible]

MEAN         3.706      STD ERR        0.006      MEDIAN        3.932
MODE         4.000      STD DEV   [illegible]     VARIANCE  [illegible]
KURTOSIS [illegible]    SKEWNESS  [illegible]     RANGE         3.000
MINIMUM      1.000      MAXIMUM        4.000

VALID CASES  12159      MISSING CASES [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79          PAGE   71

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

ENROLLED  WERE YOU ENROLLED IN SCHOOL LAST TERM ?

                                                    RELATIVE   ADJUSTED      CUM
                                         ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE      FREQ      (PCT)      (PCT)      (PCT)

YES                                1.     10759       86.5       89.3       89.3

NO                                 2.      1289       10.4       10.7      100.0

                                   0.       384        3.1    MISSING      100.0
                                          -------    -------    -------
                                 TOTAL    12432      100.0      100.0

MEAN          1.107       STD ERR         0.003        MEDIAN          1.060
MODE          1.000       STD DEV         [illegible]  VARIANCE        [illegible]
KURTOSIS      [illegible] SKEWNESS        [illegible]  RANGE           1.000
MINIMUM       1.000       MAXIMUM         2.000

VALID CASES   12048       MISSING CASES    384
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79        PAGE   72

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

GPA        WHAT WAS GRADE POINT AVERAGE LAST TERM ?

                                                  RELATIVE   ADJUSTED      CUM
                                      ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                 CODE     FREQ       (PCT)      (PCT)      (PCT)

                               0.01      851         6.8        8.9        8.9

                               1.01   [illegible]  [illegible]  [illegible]  [illegible]

                               1.51      677         5.4        7.1       17.1

                               2.01   [illegible]  [illegible]  [illegible]  [illegible]

                               2.51     2363        19.0       24.8       56.2

                               3.01   [illegible]  [illegible]  [illegible]  [illegible]

                               3.51     2198        17.7       23.0      100.0

                          [illegible] [illegible]  [illegible]  MISSING   100.0

                              99.00     1317        10.6      MISSING    100.0
                                       -------     -------     -------
                              TOTAL  [illegible]  [illegible]  [illegible]

MEAN             2.462     STD ERR          0.010      MEDIAN          2.634
MODE       [illegible]     STD DEV    [illegible]      VARIANCE  [illegible]
KURTOSIS         0.873     SKEWNESS   [illegible]      RANGE           3.500
MINIMUM          0.010     MAXIMUM          3.510

VALID CASES      9547      MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                          09/24/79         PAGE   73

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

SCHOOLMO  HOW MANY MOS WILL YOU ATT SCHOOL ?

                                           RELATIVE  ADJUSTED      CUM
                              ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL          CODE    FREQ        (PCT)      (PCT)       (PCT)

                          1.      27         0.2        0.2         0.2
                          [illegible]
                          3.     134         1.1        1.1         1.9
                          [illegible]
                          5.     582         4.7        4.9         9.9
                          [illegible]
                          7.     277         2.2        2.3        16.0
                          [illegible]
                          9.    5477        44.1       46.3        76.9
                          [illegible]
                         11.     441         3.5        3.7        88.2
                          [illegible]
                          0.     607         4.9      MISSING     100.0
                               -------     -------    -------
                       TOTAL   [illegible]

MEAN          8.730      STD ERR       0.019      MEDIAN       8.927
MODE          [illegible] STD DEV      [illegible] VARIANCE    [illegible]
KURTOSIS      [illegible] SKEWNESS     [illegible] RANGE       [illegible]
MINIMUM       1.000      MAXIMUM      12.000

VALID CASES   11825      MISSING CASES   [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                                09/24/79        PAGE   74

FILE     STUDENTS (CREATION DATE = 09/15/79)
SUBFILE   [illegible]

PARTUIT   % TUITION PAID BY PARENTS

                                              RELATIVE   ADJUSTED      CUM
                                  ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL              CODE     FREQ      (PCT)      (PCT)       (PCT)

                              0.     6957      56.0       60.1        60.1

                            [illegible]

                             26.      756       6.1        6.5        72.2

                            [illegible]

                             76.      309       2.5        2.7        77.8

                            [illegible]

                            999.      860       6.9     MISSING      100.0
                                   -------    -------    -------
                           TOTAL    [illegible]

MEAN        27.474      STD ERR       0.300       MEDIAN        [illegible]
MODE        [illegible] STD DEV       [illegible] VARIANCE      [illegible]
KURTOSIS    -0.795      SKEWNESS      [illegible] RANGE         100.000
MINIMUM      0.0        MAXIMUM     100.000

VALID CASES   11578     MISSING CASES   [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79        PAGE  75

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

PARBOOKS   $ BOOKS PAID BY PARENTS

                                                  RELATIVE   ADJUSTED     CUM
                                        ABSOLUTE    FREQ       FREQ       FREQ
CATEGORY LABEL                  CODE      FREQ     (PCT)      (PCT)      (PCT)

                                  0.      7593      61.1       65.3       65.3

                                  1.  [illegible]  [illegible]  [illegible]  [illegible]

                                 26.       644       5.2        5.5       76.0

                                 51.  [illegible]  [illegible]  [illegible]  [illegible]

                                 76.       299       2.4        2.6       80.4

                                100.  [illegible]  [illegible]  [illegible]  [illegible]

                                999.       811       6.5    MISSING      100.0
                                        -------   -------    -------
                               TOTAL  [illegible]  [illegible]  [illegible]

MEAN        23.998      STD ERR      0.373      MEDIAN       0.265
MODE         0.0        STD DEV   [illegible]   VARIANCE  [illegible]
KURTOSIS    -0.340      SKEWNESS  [illegible]   RANGE      100.000
MINIMUM      0.0        MAXIMUM    100.000

VALID CASES   11621     MISSING CASES   [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/26/79        PAGE  76

FILE   STUDENTU (CREATION DATE = 09/15/79)
SUBFILE  ALL

PARROOM    $ ROOM PAID BY PARENTS

                                                   RELATIVE   ADJUSTED     CUM
                                       ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                 [illegible]  FREQ    [illegible] [illegible] [illegible]

                               0.      6239         50.2       54.1       54.1

                       [illegible]   [illegible]  [illegible] [illegible] [illegible]

                              26.       657          5.3        5.7       63.9

                       [illegible]   [illegible]  [illegible] [illegible] [illegible]

                              76.       214          1.7        1.9       67.8

                       [illegible]   [illegible]  [illegible] [illegible] [illegible]

                             999.       902          7.3    MISSING      100.0
                                    -------      -------    -------
                           TOTAL  [illegible]  [illegible] [illegible]

MEAN         30.210      STD ERR        0.420       MEDIAN      [illegible]
MODE       [illegible]   STD DEV    [illegible]     VARIANCE    [illegible]
KURTOSIS     -1.369      SKEWNESS   [illegible]     RANGE          100.000
MINIMUM       0.0        MAXIMUM      100.000

VALID CASES   11930      MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                         09/24/79        PAGE   77

FILE     STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

PARFOOD    % FOOD PAID BY PARENTS

                                                RELATIVE   ADJUSTED     CUM
                                    ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL              CODE      FREQ       (PCT)      (PCT)      (PCT)

                              0.      6057       48.7       52.4       52.4

                   [illegible]

                             25.       940        7.6        8.1       57.1

                   [illegible]

                             75.       476        3.8        4.1       74.6

                   [illegible]

                            999.       882        7.1     MISSING     100.0
                                   -------    -------    -------
                           TOTAL   [illegible]

MEAN            32.293     STD ERR         0.401       MEDIAN       [illegible]
MODE            0.0        STD DEV      [illegible]    VARIANCE     [illegible]
KURTOSIS        -1.242     SKEWNESS     [illegible]    RANGE        100.000
MINIMUM         0.0        MAXIMUM       100.000

VALID CASES     11556      MISSING CASES   [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79          PAGE   78

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

PARSPEND  % SPENDING MONEY PAID BY PARENTS

                                                  RELATIVE   ADJUSTED     CUM
                                     ABSOLUTE       FREQ       FREQ       FREQ
CATEGORY LABEL               CODE      FREQ        (PCT)      (PCT)      (PCT)

                               0.      6404        51.5       55.4       55.4

                               1.      1391        [illegible]  [illegible]  [illegible]

                              26.      1326        10.7       11.5       78.1

                              51.       417        [illegible]  [illegible]  [illegible]

                              76.       450         3.6        3.9       85.6

                             100.      1671        [illegible]  [illegible]  100.0

                             999.       863         6.9     MISSING     100.0
                                      -------     -------    -------
                            TOTAL     12432       100.0      100.0

MEAN          22.331      STD ERR        0.341       MEDIAN        0.401
MODE           0.0        STD DEV       [illegible]   VARIANCE     [illegible]
KURTOSIS       0.203      SKEWNESS       1.369       RANGE        100.000
MINIMUM        0.0        MAXIMUM      100.000

VALID CASES   11569       MISSING CASES    863
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UDENT QUESTIONNAIRE TABULATIONS                                                    09/26/79          PAGE   79

ILE    STUDENTU (CREATION DATE = 09/15/79)
UBFILE   ALL

ETBEOG    GET BASIC EDUC OPPORTUNITY GRANT

                                                       RELATIVE   ADJUSTED      CUM
                                          ABSOLUTE       FREQ       FREQ       FREQ
ATEGORY LABEL                      CODE     FREQ        (PCT)      (PCT)      (PCT)

O                                    0.     6936        55.8        61.3       61.3

ES                                   1.     4381   [illegible] [illegible] [illegible]

                                     9.     1115         9.0     MISSING      100.0
                                          -------      -------    -------
                                   TOTAL  [illegible] [illegible] [illegible]

EAN          0.387         STD ERR         0.005         MEDIAN         0.316
ODE          0.0           STD DEV   [illegible]         VARIANCE [illegible]
URTOSIS     -1.785         SKEWNESS        0.464         RANGE          1.000
INIMUM       0.0           MAXIMUM         1.000

ALID CASES    11317        MISSING CASES   [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                                   09/24/79          PAGE   80

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

GETSEOG     GET SUPPLEMENTAL EDUC OPPORTUNITY GRANT

                                                    RELATIVE    ADJUSTED     CUM
CATEGORY LABEL                       ABSOLUTE      FREQ        FREQ        FREQ
                            [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
NO
                               0.      10127        81.5        89.5        89.5
YES
                       [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
                               9.       1115         9.0     MISSING       100.0
                                      -------     -------     -------
                           TOTAL   [illegible]   [illegible]   [illegible]

MEAN            0.105        STD ERR        0.003        MEDIAN         0.059
MODE      [illegible]        STD DEV  [illegible]        VARIANCE [illegible]
KURTOSIS        5.630        SKEWNESS [illegible]        RANGE          1.000
MINIMUM         0.0          MAXIMUM        1.000

VALID CASES     11317        MISSING CASES   [illegible]
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                                                                        09/26/79          PAGE  81
STUDENT QUESTIONNAIRE TABULATIONS

FILE     STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

GETCWS     GET COLLEGE WORK-STUDY

                                              RELATIVE   ADJUSTED       CUM
                                 ABSOLUTE       FREQ       FREQ        FREQ
CATEGORY LABEL           CODE      FREQ        (PCT)      (PCT)       (PCT)

NO                         0.      9219         74.2       81.5        81.5

YES                        1.      [illegible]  [illegible] [illegible] 100.0

                           9.      1115          9.0     MISSING      100.0
                                  -------     -------    -------
                        TOTAL     12432        100.0      100.0

MEAN         0.185    STD ERR       0.004      MEDIAN        [illegible]
MODE         0.0      STD DEV       [illegible] VARIANCE     [illegible]
KURTOSIS     [illegible] SKEWNESS   [illegible] RANGE        1.000
MINIMUM      0.0      MAXIMUM       1.000

VALID CASES  11317    MISSING CASES 1115
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STUDENT QUESTIONNAIRE TABULATIONS                                         09/24/79        PAGE  82

ILE    STUDENTQ (CREATION DATE = 09/15/79)
UBFILE   ALL

ETSTATE  GET STATE SCHOLARSHIP OR GRANT

                                                      RELATIVE  ADJUSTED    CUM
                                         ABSOLUTE       FREQ      FREQ      FREQ
ATEGORY LABEL                   CODE       FREQ        (PCT)     (PCT)     (PCT)

O                                  0.      9187        73.9      81.2      81.2

ES                                 1.      2130        17.1      18.8     100.0

                                   9.      1115         9.0   MISSING     100.0
                                         -------     -------   -------
                               TOTAL      12432       100.0     100.0

EAN        0.188      STD ERR     0.004      MEDIAN       0.116
ODE        0.0        STD DEV    [illegible] VARIANCE   [illegible]
URTOSIS    0.546      SKEWNESS   [illegible] RANGE        1.000
INIMUM     0.0        MAXIMUM     1.000

ALID CASES    11317     MISSING CASES   1115
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LE  STUDENTU (CREATION DATE = 09/15/79)
OFILE   ALL

TLOCAL  GET LOCAL OR PRIVATE SCHOLARSHIP

                                                   RELATIVE  ADJUSTED    CUM
                                       ABSOLUTE      FREQ      FREQ      FREQ
TEGORY LABEL                    CODE     FREQ        (PCT)     (PCT)     (PCT)

                                  0.     9301        74.8      82.2      82.2

S                                 1.     2016        16.2      17.8     100.0

                                  9.     1115         9.0    MISSING    100.0
                                        -------     -------   -------
                               TOTAL    12432       100.0     100.0

AN          0.178      STD ERR        0.004      MEDIAN         0.108
DE          0.0        STD DEV        0.383      VARIANCE       0.146
RTOSIS      0.831      SKEWNESS       1.683      RANGE          1.000
NIMUM       0.0        MAXIMUM        1.000

LID CASES   11317      MISSING CASES   1115
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79         PAGE  84
FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE  ALL

GE1GSL     GET FED INSURED OR STATE GSL

                                                   RELATIVE   ADJUSTED     CUM
                                        ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE     FREQ      (PCT)      (PCT)      (PCT)
NO                                 0.     9635      77.5       85.1       85.1
YES                                1.     [illegible] [illegible] [illegible] [illegible]
                                   9.     1115       9.0     MISSING     100.0
                                        -------    -------    -------
                                 TOTAL  [illegible] 100.0      100.0

MEAN         0.149      STD ERR      0.003      MEDIAN       0.087
MODE         [illegible] STD DEV     [illegible] VARIANCE    [illegible]
KURTOSIS     1.904      SKEWNESS     1.975      RANGE        1.000
MINIMUM      0.0        MAXIMUM      1.000

VALID CASES   11317     MISSING CASES   1115
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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTU (CREATION DATE = 09/15/79)                                  09/24/79        PAGE  85
SUBFILE  ALL

SEINDSL   GET NATIONAL DIRECT STUDENT LOAN

                                                  RELATIVE   ADJUSTED    CUM
ATEGORY LABEL                   CODE   ABSOLUTE     FREQ       FREQ      FREQ
                                          FREQ      (PCT)      (PCT)     (PCT)
O
                                  0.      9532       76.7       84.2      84.2
ES
                                  1.   [illegible] [illegible] [illegible] [illegible]

                                  9.      1115        9.0    MISSING     100.0
                                       -------    -------    -------
                                 TOTAL [illegible] [illegible] [illegible]

EAN          0.158       STD ERR        0.003        MEDIAN        0.094
ODE      [illegible]     STD DEV    [illegible]      VARIANCE  [illegible]
URTOSIS      1.529       SKEWNESS   [illegible]      RANGE         1.000
INIMUM       0.0         MAXIMUM        1.000

LID CASES   11317      MISSING CASES   1115
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STUDENT QUESTIONNAIRE TABULATIONS                                                 09/24/79        PAGE  [illegible]

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

GETLOAN   GET OTHER LOAN

                                                 RELATIVE  ADJUSTED  [illegible]
                                     ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL              CODE      FREQ       (PCT)     (PCT)     (PCT)

NO                           0.      10717       86.2      94.7      94.7

YES                          1.   [illegible] [illegible] [illegible] [illegible]

                             9.       1115        9.0    MISSING    100.0
                                    -------    -------    -------
                            TOTAL  [illegible] [illegible] [illegible]

MEAN           0.053     STD ERR     0.002      MEDIAN      [illegible]
MODE           0.0       STD DEV  [illegible]   VARIANCE    [illegible]
KURTOSIS      13.924     SKEWNESS [illegible]   RANGE          1.000
MINIMUM        0.0       MAXIMUM     1.000

VALID CASES   11317      MISSING CASES  [illegible]
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UDENT QUESTIONNAIRE TABULATIONS                                          09/28/79        PAGE  87

LE   STUDENTQ (CREATION DATE = 09/15/79)
BFILE   ALL

WORK     SOURCE OF FUNDS: FULL-TIME WORK

                                                RELATIVE   ADJUSTED     CUM
                                     ABSOLUTE     FREQ       FREQ       FREQ
ATEGORY LABEL                 CODE     FREQ      (PCT)      (PCT)      (PCT)

                                0.     10291      82.8       90.9       90.9

ES                              1.   [illegible] [illegible] [illegible] 100.0

                                9.      1115       9.0     MISSING     100.0
                                      ------    ------     ------
                              TOTAL [illegible]  100.0      100.0

EAN         0.091       STD ERR     0.003       MEDIAN     0.050
ODE         0.0         STD DEV  [illegible]    VARIANCE [illegible]
URTOSIS     6.133       SKEWNESS [illegible]    RANGE      1.000
INIMUM      0.0         MAXIMUM     1.000

ALID CASES   11317      MISSING CASES   1115
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STUDENT QUESTIONNAIRE TABULATIONS                                        [illegible]         PAGE  [illegible]

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

PTWORK    PART-TIME OR SUMMER WORK

                                                 RELATIVE   ADJUSTED    CUM
                                     ABSOLUTE      FREQ        FREQ     FREQ
CATEGORY LABEL               CODE      FREQ      [illegible] [illegible] [illegible]

NO                            0.       5943        47.8        52.5     52.5

YES                           1.     [illegible] [illegible] [illegible] [illegible]

                              9.       1115         9.0     MISSING    100.0
                                     -------     -------     -------
                             TOTAL   [illegible] [illegible] [illegible]

MEAN           0.475      STD ERR        0.005      MEDIAN           0.452
MODE           0.0        STD DEV    [illegible]    VARIANCE     [illegible]
KURTOSIS      -1.990      SKEWNESS   [illegible]    RANGE            1.000
MINIMUM        0.0        MAXIMUM        1.000

VALID CASES    11317      MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

SAVINGS   SOURCE OF FUNDS: SAVINGS

                                                RELATIVE   ADJUSTED     CUM
                                    ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL              CODE      FREQ        (PCT)      (PCT)      (PCT)

NO                           0.       7959        64.0       70.3       70.3

YES                          1.       3358        27.0       29.7      100.0

                             9.       1115         9.0     MISSING    100.0
                                    -------     -------    -------
                           TOTAL     12432       100.0      100.0

MEAN          0.297     STD ERR      0.004      MEDIAN       0.211
MODE          0.0       STD DEV      [illegible] VARIANCE    [illegible]
KURTOSIS     -1.208     SKEWNESS     [illegible] RANGE       1.000
MINIMUM       0.0       MAXIMUM      1.000

VALID CASES   11317     MISSING CASES   1115
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FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

SPOUSE$   SOURCE OF FUNDS: SPOUSE

                                              RELATIVE   ADJUSTED     CUM
                                  ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL            CODE      FREQ       (PCT)      (PCT)      (PCT)

NO                          0.     10588       85.2       93.6       93.6

YES                         1.   [illegible] [illegible] [illegible] [illegible]

                            9.      1115        9.0     MISSING     100.0
                                   -------    -------    -------
                           TOTAL [illegible] [illegible] [illegible]

MEAN          0.064     STD ERR       0.002     MEDIAN       0.034
MODE          0.0       STD DEV   [illegible]   VARIANCE [illegible]
KURTOSIS     10.598     SKEWNESS  [illegible]   RANGE        1.000
MINIMUM       0.0       MAXIMUM       1.000

VALID CASES   11317     MISSING CASES   [illegible]
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                                                                              09/24/79        PAGE  91
STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

GIBEN      YOUR GI BENEFITS

                                                  RELATIVE    ADJUSTED      CUM
                                      ABSOLUTE      FREQ        FREQ        FREQ
CATEGORY LABEL                 CODE     FREQ        (PCT)       (PCT)       (PCT)

NO                              0.     10678        85.9        94.4        94.4

YES                             1.   [illegible] [illegible] [illegible] [illegible]

                                9.      1115         9.0      MISSING      100.0
                                       -------     -------     -------
                              TOTAL  [illegible] [illegible] [illegible]


MEAN           0.056    STD ERR      0.002          MEDIAN      0.030
MODE           0.0      STD DEV   [illegible]       VARIANCE [illegible]
KURTOSIS      12.777    SKEWNESS  [illegible]       RANGE       1.000
MINIMUM        0.0      MAXIMUM      1.000

VALID CASES    11317    MISSING CASES  1115
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STUDENT QUESTIONNAIRE TABULATIONS                                           [illegible]        PAGE   92

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

PARGIBEN  YOUR PARENTS GI BENEFETS

                                               RELATIVE  ADJUSTED   CUM
                                   ABSOLUTE      FREQ      FREQ     FREQ
CATEGORY LABEL               CODE    FREQ       (PCT)     (PCT)    (PCT)

NO                             0.    11135       89.6      98.4     98.4

YES                            [illegible]

                               9.     1115        9.0   MISSING    100.0
                                    -------    -------   -------
                        TOTAL        [illegible]

MEAN           0.016      STD ERR         0.001      MEDIAN          0.008
MODE           0.0        STD DEV         [illegible] VARIANCE       [illegible]
KURTOSIS      57.223      SKEWNESS        7.695      RANGE           1.000
MINIMUM        0.0        MAXIMUM         1.000

VALID CASES    11317      MISSING CASES   [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                                        09/24/79        PAGE   93

FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

SSBEN       SOCIAL SECURITY DEPENDENT BENEFITS

                                                 RELATIVE   ADJUSTED      CUM
                                    ABSOLUTE       FREQ       FREQ       FREQ
CATEGORY LABEL              CODE      FREQ        (PCT)      (PCT)      (PCT)

NO                            0.     10379         83.5       91.7       91.7

YES                           1.    [illegible]   [illegible] [illegible] 100.0

                              9.      1115          9.0     MISSING     100.0
                                    -------      -------    -------
                            TOTAL  [illegible]    100.0      100.0

MEAN            0.083     STD ERR        0.003      MEDIAN        0.045
MODE            0.0       STD DEV     [illegible]   VARIANCE   [illegible]
KURTOSIS        7.159     SKEWNESS    [illegible]   RANGE         1.000
MINIMUM         0.0       MAXIMUM        1.000

VALID CASES     11317     MISSING CASES  [illegible]
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                                                                                          09/24/79         PAGE  9
STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

UTHAID     RECEIVE ANY OTHER TYPE OF FINANCIAL AID

                                                  RELATIVE  ADJUSTED    CUM
                                        ABSOLUTE    FREQ      FREQ      FREQ
CATEGORY LABEL                  CODE      FREQ     (PCT)     (PCT)     (PCT)

NO                               0.      10062      80.9      88.9      88.9

YES                              1.       1254      10.1      11.1     100.0

                                 4.          1       0.0       0.0     100.0

                                 9.       1115       9.0   MISSING     100.0
                                        -------   -------   -------
                                TOTAL    12432     100.0     100.0

MEAN         0.111    STD ERR      0.003     MEDIAN         0.062
MODE         0.0      STD DEV      0.316     VARIANCE       0.100
KURTOSIS     5.970    SKEWNESS     2.592     RANGE          4.000
MINIMUM      0.0      MAXIMUM      4.000

VALID CASES   11317     MISSING CASES   1115
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STUDENT QUESTIONNAIRE TABULATIONS                                               09/24/79        PAGE

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

QAIDTYPE  OTHER FINANCIAL AID TYPE

                  ADJ  CUM                           ADJ  CUM                            ADJ  CUM
    CODE   FREQ  PCT  PCT        CODE      FREQ  PCT  PCT       CODE        FREQ  PCT  PCT

      1.     17    2    2         25.          1    0   83        [illegible]
      2.     11    1    3         26.          1    0   83        50.           10    1   94
      3.  [illegible]   4         27.  [illegible]  0   83        [illegible]
      4.  [illegible]             [illegible]                     [illegible]
      5.    115   11   15         [illegible]                     [illegible]
      6.     93    9   24         30.  [illegible]  0   84        54.           10    1   96
      7.      1    0   24         [illegible]                     [illegible]
      8.  [illegible]             [illegible]                     [illegible]
      9.      5    0   25         [illegible]                     [illegible]
     10.      3    0   25         33.          2    0   86        [illegible]
     11.      9    1   26         [illegible]                     60.            1
     12.     22    2   28         [illegible]                     [illegible]
     13.     25    2   30         [illegible]                     [illegible]
     14.      2    0   30         38.         27    2   89        63.
     15.     14    1   31         39.          1    0   90        [illegible]
     16.    3[illegible]  33  [illegible]  [illegible]              [illegible]
     17.     20    2   67         [illegible]                     [illegible]
     18.      9    1   67         42.          5    0   91        67.            3    0  100
     19.     13    1   69         [illegible]                     [illegible]
     20.  [illegible]             [illegible]                     [illegible]
     21.     62    6   80         [illegible]                     70.            1    0  100
     22.     25    2   82         47.          5    0   93
     24.      5    0   83         48.          4    0   93

                                M I S S I N G   D A T A
    CODE    FREQ                    CODE    FREQ                  CODE    FREQ
     98.   11178                     99.     163

MEAN          [illegible]   STD ERR       [illegible]   MEDIAN       [illegible]
MODE          16.000        STD DEV          14.363     VARIANCE     [illegible]
KURTOSIS       2.170        SKEWNESS          1.570     RANGE           69.000
MINIMUM        1.000        MAXIMUM          70.000

VALID CASES     1091        MISSING CASES 11341
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STUDENT QUESTIONNAIRE TABULATIONS                                          09/24/79            PAGE  95
FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

APPLYAID  DID YOU APPLY FOR FINANCIAL AID ?

                                                 RELATIVE  ADJUSTED     CUM
                                        ABSOLUTE    FREQ      FREQ      FREQ
CATEGORY LABEL                   CODE     FREQ      (PCT)     (PCT)     (PCT)

YES                                1.     7610      61.2      62.1      62.1

NO                                 2.     4640      37.4      37.9     100.0

                                   0.      174       1.4   MISSING     100.0
                                        -------   -------   -------
                               TOTAL     12424     100.0     100.0

MEAN          1.379       STD ERR        0.004      MEDIAN       1.305
MODE          1.000       STD DEV        0.485      VARIANCE     0.235
KURTOSIS     -1.752       SKEWNESS       0.500      RANGE        1.000
MINIMUM       1.000       MAXIMUM        2.000

VALID CASES   12250       MISSING CASES    174
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FILE     STUDENTR (CREATION [illegible]
SUBFILE  ALL

NOTKNOW   WHY NOT: I DID NOT KNOW ABOUT FIN AID

                                            RELATIVE   ADJUSTED    CUM
                               ABSOLUTE       FREQ       FREQ      FREQ
CATEGORY LABEL          CODE     FREQ        (PCT)      (PCT)     (PCT)

NO                        0.     4015        32.3       91.9      91.9
YES                       1.      352         2.8        8.1     100.0
                          8.     7784        62.6     MISSING    100.0
                          9.      281         2.3     MISSING    100.0
                                 ------     ------     ------
                        TOTAL    12432       100.0      100.0

MEAN          0.081     STD ERR        0.004       MEDIAN        0.044
MODE          0.0       STD DEV        0.272       VARIANCE      0.074
KURTOSIS      7.404     SKEWNESS       [illegible] RANGE         [illegible]
MINIMUM       0.0       MAXIMUM        1.000

VALID CASES     4367    MISSING CASES   8065
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ENT QUESTIONNAIRE TABULATIONS                                                    09/24/79          PAGE   98

    STUDENTQ (CREATION DATE = 09/15/79)
ILE   ALL

NSTM  WHY NOT: PARENTS DIDNT COMPLETE FIN FORM

                                                    RELATIVE   ADJUSTED     CUM
                                         ABSOLUTE     FREQ        FREQ      FREQ
DORY LABEL                        CODE     FREQ      (PCT)       (PCT)     (PCT)

                                   0.      3903       31.4        89.4      89.4

                                   1.  [illegible] [illegible] [illegible] [illegible]

                                   8.      7784       62.6     MISSING     100.0

                                   9.  [illegible] [illegible]   MISSING   [illegible]
                                          ------     ------      ------
                                TOTAL     12432      100.0       100.0

            0.106        STD ERR          0.005          MEDIAN              0.059
            0.0          STD DEV          0.308          VARIANCE            0.095
OSIS        4.537        SKEWNESS         2.556          RANGE               1.000
MUM         0.0          MAXIMUM      [illegible]

D CASES     4367         MISSING CASES   8865
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UDENT QUESTIONNAIRE TABULATIONS                                              09/24/79        PAGE   99

E    STUDENTU (CREATION DATE = 09/15/79)
FILE   ALL

TELIG    WHY NOT: THOUGHT NOT ELIG FOR FIN AID

                                                  RELATIVE   ADJUSTED     CUM
                                      ABSOLUTE      FREQ       FREQ       FREQ
TEGORY LABEL                    CODE    FREQ       (PCT)      (PCT)      (PCT)

                                  0.    1422       11.4       32.6       32.6

S                                 1.    2945       23.7       67.4      100.0

                                  8.    7784       62.6     MISSING     100.0

                                  9.     281        2.3     MISSING     100.0
                                       -------    -------    -------
                              TOTAL    12432      100.0      100.0

AN          0.674       STD ERR        0.007      MEDIAN              0.759
DE          1.000       STD DEV        0.469      VARIANCE            0.220
RTOSIS     -1.446       SKEWNESS      -0.744      RANGE               1.000
NIMUM       0.0         MAXIMUM        1.000

LID CASES      4367     MISSING CASES   8065
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FILE     STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

LOWGRADE  WHY NOT: GRADES TOO LOW TO GET FIN AID

                                                RELATIVE  ADJUSTED      CUM
                                      ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL                 CODE      FREQ     (PCT)     (PCT)     (PCT)

NO                               0.      4258      34.3      97.5      97.5

YES                              1.       109       0.9       2.5     100.0

                                 8.      7784      62.6   MISSING     100.0

                                 9.       281       2.3   MISSING     100.0
                                        -------   -------   -------
                               TOTAL    12432     100.0     100.0

MEAN           0.025      STD ERR        0.002      MEDIAN         0.013
MODE           0.0        STD DEV        0.156      VARIANCE       0.024
KURTOSIS      35.131      SKEWNESS       6.092      RANGE          1.000
MINIMUM        0.0        MAXIMUM        1.000

VALID CASES     4367      MISSING CASES   8065
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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTQ (CREATION DATE = 09/15/79)                                        09/24/79          PAGE  101
SUBFILE  ALL

NUAIDPT    WHY NOT: BECAUSE I ENROLLED PART-TIME

                                                  RELATIVE   ADJUSTED     CUM
                                      ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                 CODE     FREQ       (PCT)      (PCT)      (PCT)
NO
                                0.      4248       34.2       97.3       97.3
YES
                                1.       117        0.9        2.7      100.0

                                8.      7784       62.6     MISSING     100.0

                                9.       281        2.3     MISSING     100.0
                                       -------    -------    -------
                               TOTAL    12432      100.0      100.0

MEAN            0.027      STD ERR       [illegible]      MEDIAN          [illegible]
MODE            0.0        STD DEV       0.163            VARIANCE        0.027
KURTOSIS       31.763      SKEWNESS      [illegible]      RANGE           1.000
MINIMUM         0.0        MAXIMUM       1.000

VALID CASES     4367       MISSING CASES  8065
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STUDENT QUESTIONNAIRE TABULATIONS                                          09/26/79            PAGE  102

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

LONGFORM  WHY NOT: FIN AID APPLECATION TOO LONG

                                                     RELATIVE   ADJUSTED     CUM
                                      ABSOLUTE        FREQ        FREQ       FREQ
CATEGORY LABEL                 CODE     FREQ          (PCT)       (PCT)      (PCT)

NO                               0.     4162          33.5        95.3       95.3

YES                              1.      205     [illegible]       4.7      100.0

                                 8.     7784          62.6      MISSING     100.0

                                 9.  [illegible] [illegible]    MISSING     100.0
                                      -------       ------      ------
                              TOTAL    12432         100.0       100.0

MEAN          0.047      STD ERR        0.003       MEDIAN          0.025
MODE          0.0        STD DEV        0.212       VARIANCE        0.045
KURTOSIS     16.372      SKEWNESS       4.285       RANGE           1.000
MINIMUM       0.0        MAXIMUM        1.000

VALID CASES     4367       MISSING CASES   8065
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/26/79          PAGE 1

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

UTHNOAPP  WHY NOT: OTHER REASON FOR NOT APPLYING

                                               RELATIVE   ADJUSTED     CUM
                                   ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL               CODE    FREQ       (PCT)      (PCT)      (PCT)

NO                             0.    3070       24.7       70.3       70.3

YES                            1.    1297       10.4       29.7      100.0

                               8.    7784       62.6     MISSING     100.0

                               9.     281        2.3     MISSING     100.0
                                   ------     ------     ------
                           TOTAL    12432      100.0      100.0

MEAN          0.297     STD ERR        0.007      MEDIAN         0.211
MODE          0.0       STD DEV        0.457      VARIANCE       0.209
KURTOSIS     -1.211     SKEWNESS       0.889      RANGE          1.000
MINIMUM       0.0       MAXIMUM        1.000

VALID CASES     4367       MISSING CASES   8065
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STUDENT QUESTIONNAIRE TABULATIONS                                          [illegible]            PAGE [illegible]

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

OAPPTYPE  TYPE OF OTHER REASON FOR NOT APPLYING

                ADJ CUM                      ADJ CUM                            ADJ CUM
   CODE   FREQ  PCT PCT        CODE    FREQ  PCT PCT         CODE        FREQ   PCT PCT

     1.    133   11  11         18.      26    2  81          36.  [illegible]
     2.     40    3  14         19.      10    1  83          37.  [illegible]
     3.     24    2  16         20.  [illegible]              39.  [illegible]
     4.    234   19 [illegible] 21.  [illegible]              40.  [illegible]
     5.    329   27  64         22.  [illegible]              41.  [illegible]
     6.     22    2  66         23.       3    0  93          42.  [illegible]
     7.     13    1  67         24.     102  [illegible]      43.  [illegible]
     8. [illegible]   1  67     25.  [illegible]              44.  [illegible]
     9.     19    2  69         26.  [illegible]              45.  [illegible]
    10.     11    1  69         27.  [illegible]   94         46.  [illegible]
    11.      4    0  70         29.  [illegible]   94         48.  [illegible]
    12. [illegible]   [illegible] 30.  [illegible]            50.  [illegible]
    13.     79    6  76         31.  [illegible]   95         51.  [illegible]
    14.      2    0  76         32.       8    0  95          52.  [illegible]  100
    15.      4    0  77         33.  [illegible]   95
    16.     13    1  78         34.  [illegible]
    17.      9    1  79         35.       3    0  96

                           M I S S I N G   D A T A
   CODE   FREQ                 CODE    FREQ                 CODE   FREQ

    98.  11135                  99.      76

MEAN            9.893     STD ERR       0.295     MEDIAN     [illegible]
MODE            5.000     STD DEV      10.306     VARIANCE   [illegible]
KURTOSIS    [illegible]   SKEWNESS  [illegible]   RANGE      [illegible]
MINIMUM         1.000     MAXIMUM      52.000

VALID CASES     1221      MISSING CASES  11211
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79          PAGE  185

FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

APP5AID    APPLY FOR ANY OF 5 FEDERAL AID PROGRAMS?

                                                   RELATIVE  ADJUSTED    CUM
                                        ABSOLUTE    FREQ      FREQ      FREQ
CATEGORY LABEL                 CODE      FREQ      (PCT)     (PCT)     (PCT)

YES                             1.       6562       52.8      87.4      87.4

NO                              2.       [illegible]  [illegible]  [illegible]  [illegible]

DONT KNOW                       3.        550        4.4       7.3     100.0

                                8.       [illegible]  [illegible]  MISSING  100.0

                                9.        274        2.2    MISSING   100.0
                                       -------    -------   -------
                               TOTAL     [illegible]  100.0     100.0

MEAN           1.199     STD ERR        0.006       MEDIAN         1.072
MODE           [illegible]  STD DEV     [illegible]  VARIANCE     [illegible]
KURTOSIS       [illegible]  SKEWNESS    [illegible]  RANGE          2.000
MINIMUM        1.000     MAXIMUM        3.000

VALID CASES     7810     MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                               09/26/79        PAGE  106

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

APPBEOG   DID YOU APPLY FOR BASIC EDUC OPP GRANT ?

                                                   RELATIVE   ADJUSTED     CUM
                                        ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE     FREQ      (PCT)      (PCT)      (PCT)

NO                                 0.      610       4.9        9.3        9.3

YES                                1.     5926      47.7       90.7      100.0

                                   8.     5870      47.2     MISSING     100.0

                                   9.       26       0.2     MISSING     100.0
                                        -------    -------    -------
                                 TOTAL   12432      100.0      100.0

MEAN          0.907     STD ERR          0.004         MEDIAN             0.950
MODE          1.000     STD DEV          0.291         VARIANCE           0.085
KURTOSIS      5.823     SKEWNESS        -2.797         RANGE              1.000
MINIMUM       0.0       MAXIMUM          1.000

VALID CASES     6536       MISSING CASES   5896
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FILE     STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

APPSEOG   DID YOU APPLY FOR SUPP EDUC OPP GRANT ?

                                             RELATIVE  ADJUSTED     CUM
                                  ABSOLUTE     FREQ      FREQ       FREQ
CATEGORY LABEL           CODE       FREQ      (PCT)     (PCT)      (PCT)

NO                         0.       5147      41.4      78.7       78.7

YES                        1.       1389      11.2      21.3      100.0

                           8.       5870      47.2    MISSING     100.0

                           9.         26       0.2    MISSING     100.0
                                  ------    ------    ------
                         TOTAL     12432     100.0     100.0

MEAN           0.213      STD ERR       0.005      MEDIAN         0.135
MODE           0.0        STD DEV       0.409      VARIANCE       0.167
KURTOSIS      -0.024      SKEWNESS      1.406      RANGE          1.000
MINIMUM        0.0        MAXIMUM       1.000

VALID CASES    6536       MISSING CASES  5896
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STUDENT QUESTIONNAIRE TABULATIONS                                         09/24/79          PAGE 108

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

APPNDSL   DID YOU APPLY FOR NATL DIRECT STU LOAN ?

                                                 RELATIVE   ADJUSTED      CUM
                                      ABSOLUTE     FREQ       FREQ        FREQ
CATEGORY LABEL                 CODE     FREQ       (PCT)      (PCT)       (PCT)

NO                              0.      4757       38.3       72.8        72.8

YES                             1.      1779       14.3       27.2       100.0

                                8.      5870       47.2     MISSING      100.0

                                9.        26        0.2     MISSING      100.0
                                       -------    -------    -------
                              TOTAL    12432      100.0      100.0

MEAN           0.272       STD ERR        0.006        MEDIAN          0.187
MODE           0.0         STD DEV        0.445        VARIANCE        0.198
KURTOSIS      -0.952       SKEWNESS       1.024        RANGE           1.000
MINIMUM        0.0         MAXIMUM        1.000

VALID CASES    6536        MISSING CASES  5896
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FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

APPCWS    DID YOU APPLY FOR COLLEGE WORK-STUDY ?

                                                RELATIVE   ADJUSTED     CUM
                                     ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                CODE     FREQ      (PCT)      (PCT)      (PCT)

NO                              0.     4408       35.5       67.4       67.4

YES                             1.     2128       17.1       32.6      100.0

                                0.     5870       47.2     MISSING     100.0

                                9.       26        0.2     MISSING     100.0
                                     ------     ------     ------
                             TOTAL    12432      100.0      100.0

MEAN           0.326     STD ERR         0.006      MEDIAN          0.241
MODE           0.0       STD DEV         0.469      VARIANCE        0.220
KURTOSIS      -1.446     SKEWNESS        0.745      RANGE           1.000
MINIMUM        0.0       MAXIMUM         1.000

VALID CASES     6536     MISSING CASES  5896
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STUDENT QUESTIONNAIRE TABULATIONS                                                        09/24/79          PAGE  110

FILE    STUDENTO  (CREATION DATE = 09/15/79)
SUBFILE    ALL

APPGSL     DID YOU APPLY FOR GSL ?

                                                       RELATIVE    ADJUSTED      CUM
                                            ABSOLUTE     FREQ        FREQ        FREQ
CATEGORY LABEL                     CODE       FREQ      (PCT)       (PCT)       (PCT)

NO                                   0.       5148       41.4        78.8        78.8

YES                                  1.       1388       11.2        21.2       100.0

                                     8.       5870       47.2     MISSING      100.0

                                     9.         26        0.2     MISSING      100.0
                                            -------     -------     -------
                                   TOTAL     12432      100.0       100.0

MEAN          0.212     STD ERR         0.005        MEDIAN          0.135
MODE          0.0       STD DEV         0.409        VARIANCE        0.167
KURTOSIS     -0.021     SKEWNESS        1.407        RANGE           1.000
MINIMUM       0.0       MAXIMUM         1.000

VALID CASES     6536       MISSING CASES  5896
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79          PAGE  111

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

FORMHS    DID YOU GET FIN AID FORMS FROM HS ?

                                                 RELATIVE   ADJUSTED      CUM
                                      ABSOLUTE     FREQ       FREQ        FREQ
CATEGORY LABEL                 CODE     FREQ       (PCT)      (PCT)       (PCT)

NO                               0.     5713       46.0       80.0        80.0

YES                              1.     1428       11.5       20.0       100.0

                                 8.     5046       40.6     MISSING      100.0

                                 9.      245        2.0     MISSING      100.0
                                       ------     ------     ------
                               TOTAL    12432      100.0      100.0

MEAN          0.200      STD ERR       0.005      MEDIAN       0.125
MODE          0.0        STD DEV       0.400      VARIANCE     0.160
KURTOSIS      0.252      SKEWNESS      1.501      RANGE        1.000
MINIMUM       0.0        MAXIMUM       1.000

VALID CASES    7141      MISSING CASES  5291
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STUDENT QUESTIONNAIRE TABULATIONS                                                09/24/79          PAGE  112

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

FORMLIB   DID YOU GET FIN AID FORMS FROM LEB ?

                                               RELATIVE   ADJUSTED     CUM
                                   ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL             CODE      FREQ       (PCT)      (PCT)      (PCT)

NO                           0.      7027        56.5       98.4       98.4

YES                          1.       114         0.9        1.6      100.0

                             8.      5046        40.6     MISSING     100.0

                             9.       245         2.0     MISSING     100.0
                                   -------     -------    -------
                           TOTAL    12432       100.0      100.0

MEAN           0.016     STD ERR         0.001     MEDIAN          0.008
MODE           0.0       STD DEV         0.125     VARIANCE        0.016
KURTOSIS      57.698     SKEWNESS        7.725     RANGE           1.000
MINIMUM        0.0       MAXIMUM         1.000

VALID CASES     7141      MISSING CASES   5291
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79        PAGE  113

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

FORMFAD   DID YOU GET FIN AID FORMS FR FIN OFF ?

                                                    RELATIVE   ADJUSTED     CUM
                                         ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE      FREQ      (PCT)      (PCT)      (PCT)

NO                                 0.      1675      13.5       23.5       23.5

YES                                1.      5466      44.0       76.5      100.0

                                   8.      5046      40.6     MISSING     100.0

                                   9.       245       2.0     MISSING     100.0
                                          -------   -------    -------
                                 TOTAL    12432     100.0      100.0

MEAN           0.765      STD ERR         0.005      MEDIAN          0.847
MODE           1.000      STD DEV         0.424      VARIANCE        0.180
KURTOSIS      -0.430      SKEWNESS       -1.253      RANGE           1.000
MINIMUM        0.0        MAXIMUM         1.000

VALID CASES     7141      MISSING CASES  5291
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FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

FORMCAMP  DID YOU GET FIN AID FORMS FR ON-CAMP ?

                                             RELATIVE  ADJUSTED    CUM
                                 ABSOLUTE      FREQ      FREQ      FREQ
CATEGORY LABEL             CODE    FREQ       (PCT)     (PCT)     (PCT)

NO                           0.    6722        54.1      94.1      94.1

YES                          1.    [illegible] [illegible] [illegible] [illegible]

                             8.    5046        40.6   MISSING     100.0

                             9.    [illegible] [illegible] MISSING [illegible]
                                  -------     -------   -------
                         TOTAL    12432       100.0     100.0

MEAN           0.059     STD ERR        0.003      MEDIAN         0.031
MODE           0.0       STD DEV        0.235      VARIANCE       0.055
KURTOSIS      12.115     SKEWNESS       3.756      RANGE          1.000
MINIMUM        0.0       MAXIMUM        1.000

VALID CASES     7141     MISSING CASES   5291
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FILE     STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

FORMGOVT   DID YOU GET FIN AID FORMS FR GOVT ?

                                              RELATIVE   ADJUSTED     CUM
                                   ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL             CODE      FREQ       (PCT)      (PCT)      (PCT)

NO                          0.       6954       55.9       97.4       97.4

YES                         1.        187        1.5        2.6      100.0

                            8.       5046       40.6     MISSING     100.0

                            9.        245        2.0     MISSING     100.0
                                    -------    -------    -------
                          TOTAL     12432      100.0      100.0

MEAN          0.026     STD ERR        0.002      MEDIAN        0.013
MODE          0.0       STD DEV        0.160      VARIANCE      0.026
KURTOSIS     33.238     SKEWNESS       5.935      RANGE         1.000
MINIMUM       0.0       MAXIMUM        1.000

VALID CASES     7141      MISSING CASES   5291
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STUDENT QUESTIONNAIRE TABULATIONS                                               09/24/79        PAGE  116

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

FORMUSOE  DID YOU GET FIN AID FORMS FR USOE ?

                                                  RELATIVE   ADJUSTED      CUM
                                      ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL                 CODE     FREQ       (PCT)      (PCT)       (PCT)

NO                               0.     6960       56.0       97.5        97.5

YES                              1.      181        1.5        2.5       100.0

                                 8.     5046       40.6     MISSING      100.0

                                 9.      245        2.0     MISSING      100.0
                                       ------     ------     ------
                             TOTAL     12432      100.0      100.0

MEAN           0.025     STD ERR        0.002     MEDIAN         0.013
MODE           0.0       STD DEV        0.157     VARIANCE       0.025
KURTOSIS      34.504     SKEWNESS       6.041     RANGE          1.000
MINIMUM        0.0       MAXIMUM        1.000

VALID CASES     7141      MISSING CASES  5291
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FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

FORMOTH    DID YOU GET FIN AID FORMS FR OTHER ?

                                                RELATIVE   ADJUSTED      CUM
                                     ABSOLUTE     FREQ       FREQ        FREQ
CATEGORY LABEL               CODE      FREQ      (PCT)      (PCT)       (PCT)

NO                             0.      6763       54.4       94.7        94.7

YES                            1.       378        3.0        5.3       100.0

                               8.      5046       40.6    MISSING       100.0

                               9.       245        2.0    MISSING       100.0
                                     -------    -------    -------
                           TOTAL      12432      100.0      100.0

MEAN            0.053     STD ERR          0.003     MEDIAN           0.028
MODE            0.0       STD DEV          0.224     VARIANCE         0.050
KURTOSIS       13.958     SKEWNESS         3.994     RANGE            1.000
MINIMUM         0.0       MAXIMUM          1.000

VALID CASES     7141      MISSING CASES   5291
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79        PAGE  118

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

CARD3

                                                RELATIVE  ADJUSTED    CUM
                                      ABSOLUTE    FREQ      FREQ      FREQ
CATEGORY LABEL                  CODE    FREQ     (PCT)     (PCT)     (PCT)

                                  3.    12432     100.0     100.0     100.0
                                       ------    ------    ------
                                TOTAL   12432     100.0     100.0

MEAN          3.000     STD ERR       0.0           MEDIAN        3.000
MODE          3.000     STD DEV       0.0           VARIANCE      0.0
RANGE         0.0       MINIMUM       3.000         MAXIMUM       3.000

VALID CASES   12432     MISSING CASES     0
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTS (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q360THER  DID YOU GET FIN AID FORMS FR OTHER ?

                  ADJ  CUM                        ADJ  CUM                      ADJ  CUM
   CODE      FREQ PCT  PCT       CODE      FREQ  PCT  PCT       CODE      FREQ PCT  PCT

     1.       210  66   66        10.         2    1   86        25.         1    0  [illegible]
     2.         3   1   67        12.         1    0   86        26.         1    0  [illegible]
     3.         3   1   68        14.         1    2   88     [illegible]    2    1  [illegible]
     4.        21 [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
     5.         2   1   76        17.         1    1   91     [illegible]    1    0   99
     6.         1   0   76        18.         1    1   91        30.         1    0   99
     7.        10   6   82        19.         1    1   92        31.         1    0  100
     8.         5   1   83     [illegible] [illegible] [illegible] [illegible]  32.  1    0  100
     9.         7   2   85        21.         5    2   95

                              M I S S I N G   D A T A
   CODE      FREQ               CODE      FREQ               CODE      FREQ

    98.     12054                99.        62

MEAN          4.832       STD ERR        0.415       MEDIAN          1.252
MODE          1.000       STD DEV        7.377       VARIANCE       54.419
KURTOSIS  [illegible]     SKEWNESS   [illegible]     RANGE       [illegible]
MINIMUM       1.000       MAXIMUM       32.000

VALID CASES     316       MISSING CASES 12116
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STUDENT QUESTIONNAIRE TABULATIONS                                                09/24/79        PAGE  120

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

SHEFORM   DID YOU SUBMIT INST APPL FORM ?

                                                  RELATIVE  ADJUSTED     CUM
                                       ABSOLUTE     FREQ      FREQ       FREQ
CATEGORY LABEL                  CODE     FREQ       (PCT)     (PCT)      (PCT)

NO                                0.     5285        42.5      75.9       75.9

YES                               1.     1678        13.5      24.1      100.0

                                  8.     5046        40.6    MISSING     100.0

                                  9.      423         3.4    MISSING     100.0
                                        -------     -------   -------
                                TOTAL   12432       100.0     100.0

MEAN           0.241     STD ERR        0.005      MEDIAN        0.159
MODE           0.0       STD DEV        0.428      VARIANCE      0.183
KURTOSIS      -0.532     SKEWNESS       1.211      RANGE         1.000
MINIMUM        0.0       MAXIMUM        1.000

VALID CASES     6963     MISSING CASES   5469
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STUDENT QUESTIONNAIRE TABULATIONS                                                      09/24/79           PAGE  121

FILE    STUDENTO (CREATION DATE = 09/15/79)
SUBFILE   ALL

BEOGFORM  DID YOU SUBMIT BEOG APPL FORM ?

                                                  RELATIVE  ADJUSTED     CUM
                                       ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL                 CODE      FREQ      (PCT)     (PCT)     (PCT)

NO                               0.      1555      12.5      22.3      22.3

YES                              1.      5408      43.5      77.7     100.0

                                 8.      5046      40.6   MISSING     100.0

                                 9.       423       3.4   MISSING     100.0
                                       ------    ------    ------
                             TOTAL      12432     100.0     100.0

MEAN          0.777     STD ERR        0.005     MEDIAN         0.856
MODE          1.000     STD DEV        0.417     VARIANCE       0.173
KURTOSIS     -0.234     SKEWNESS      -1.329     RANGE          1.000
MINIMUM       0.0       MAXIMUM        1.000

VALID CASES     6963     MISSING CASES  5469
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STUDENT QUESTIONNAIRE TABULATIONS                                         09/24/79          PAGE  122

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE    ALL

CSSFAF     DID YOU SUBMIT A CSS FAF?

                                                 RELATIVE   ADJUSTED      CUM
                                     ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL              CODE       FREQ        (PCT)      (PCT)       (PCT)

NO                            0.       3808        30.6       54.7        54.7

YES                           1.       3155        25.4       45.3       100.0

                              8.       5046        40.6     MISSING      100.0

                              9.        423         3.4     MISSING      100.0
                                     ------      ------      ------
                            TOTAL     12432       100.0       100.0

MEAN           0.453     STD ERR        0.006       MEDIAN         [illegible]
MODE           0.0       STD DEV        0.498       VARIANCE       0.248
KURTOSIS      -1.965     SKEWNESS       0.188       RANGE          1.000
MINIMUM        0.0       MAXIMUM        1.000

VALID CASES      6963      MISSING CASES   5469
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79        PAGE  123

FILE    STUDENTQ (CREATION DATE = 09/18/79)
SUBFILE   ALL

ACTFF8    DID YOU SUBMIT AN ACT-FAF

                                                     RELATIVE   ADJUSTED      CUM
                                          ABSOLUTE     FREQ       FREQ        FREQ
CATEGORY LABEL                    CODE      FREQ       (PCT)      (PCT)       (PCT)

NO                                  0.      6299       50.7       90.5        90.5

YES                                 1.       664        5.3        9.5       100.0

                                    8.      5046       40.6     MISSING      100.0

                                    9.       423        3.4     MISSING      100.0
                                          ------     ------      ------
                                 TOTAL     12432      100.0      100.0

MEAN           0.095      STD ERR          0.004       MEDIAN          0.053
MODE           0.0        STD DEV          0.294       VARIANCE        0.086
KURTOSIS       [illegible]97   SKEWNESS         [illegible]       RANGE           [illegible]
MINIMUM        0.0        MAXIMUM          1.000

VALID CASES     6963      MISSING CASES   5469
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79          PAGE  123

FILE    STUDENTQ (CREATION DATE = 09/18/79)
SUBFILE   ALL

ACTFFS    DID YOU SUBMIT AN ACT-FAF?

                                                      RELATIVE  ADJUSTED    CUM
                                          ABSOLUTE      FREQ      FREQ      FREQ
CATEGORY LABEL                    CODE      FREQ       (PCT)     (PCT)     (PCT)

NO                                  0.      6299       50.7      90.5      90.5

YES                                 1.       664        5.3       9.5     100.0

                                    8.      5046       40.6    MISSING    100.0

                                    9.       423        3.4    MISSING    100.0
                                          -------    -------   -------
                                  TOTAL    12432      100.0     100.0

MEAN          0.095      STD ERR         0.004      MEDIAN          0.053
MODE          0.0        STD DEV         0.294      VARIANCE        0.086
KURTOSIS      [illegible]97      SKEWNESS        [illegible]      RANGE           [illegible]
MINIMUM       0.0        MAXIMUM         1.000

VALID CASES    6963      MISSING CASES   5469
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STUDENT QUESTIONNAIRE TABULATIONS                                            09/24/79        PAGE 124

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

PHEAFORM  DID YOU SUBMIT PA HIGHER ED ASST FORM ?

                                                RELATIVE   ADJUSTED     CUM
                                    ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL              CODE      FREQ       (PCT)      (PCT)      (PCT)

NO                            0.      6741       54.2       96.8       96.8

YES                           1.  [illegible]  [illegible] [illegible] 100.0

                              8.      5046       40.6     MISSING     100.0

                         [illegible] [illegible] [illegible] MISSING  100.0
                                   -------    -------    -------
                           TOTAL     12432      100.0      100.0

MEAN          0.032    STD ERR     0.002     MEDIAN      0.016
MODE          0.0      STD DEV     0.176     VARIANCE    0.031
KURTOSIS     26.510    SKEWNESS    5.330     RANGE       1.000
MINIMUM       0.0      MAXIMUM     1.000

VALID CASES    6963     MISSING CASES   5469
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

STATFORM  DID YOU SUBMIT STATE AID FORM ?

                                                RELATIVE   ADJUSTED     CUM
                                  ABSOLUTE        FREQ       FREQ       FREQ
CATEGORY LABEL             CODE     FREQ          (PCT)      (PCT)      (PCT)

NO                           0.     5535          44.5       79.5       79.5

YES                          1.     1428          11.5       20.5      100.0

                             8.     5046          40.6     MISSING     100.0

                             9.  [illegible]  [illegible]  MISSING     100.0
                                  -------       ------     ------
                          TOTAL    12432         100.0      100.0

MEAN          0.205     STD ERR       0.005     MEDIAN        0.129
MODE          0.0       STD DEV       0.404     VARIANCE      0.163
KURTOSIS      0.135     SKEWNESS      1.461     RANGE         1.000
MINIMUM       0.0       MAXIMUM       1.000

VALID CASES     6963     MISSING CASES   5469
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79          PAGE  126

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

UTHFORM    DID YOU SUBMIT OTHER FORMS SPECIFY ?

                                                 RELATIVE   ADJUSTED    CUM
                                     ABSOLUTE      FREQ       FREQ      FREQ
CATEGORY LABEL              CODE       FREQ       (PCT)      (PCT)     (PCT)

NO                            0.       6711        54.0       96.4      96.4

YES                           1.        252         2.0        3.6     100.0

                              8.       5046        40.6    MISSING     100.0

                              9.        423         3.4    MISSING     100.0
                                     -------    -------    -------
                           TOTAL      12432       100.0      100.0

MEAN          0.036       STD ERR        0.002       MEDIAN         0.019
MODE          0.0         STD DEV        0.187       VARIANCE       0.035
KURTOSIS     22.686       SKEWNESS       4.968       RANGE          1.000
MINIMUM       0.0         MAXIMUM        1.000

VALID CASES    6963       MISSING CASES  5469
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)                                09/24/79          PAGE  127
SUBFILE ALL

Q37OTHER  WHICH FIN AID APPL DID YOU SUBMIT ?

              ADJ CUM                       ADJ CUM                       ADJ CUM
 CODE   FREQ  PCT PCT     CODE      FREQ   PCT PCT     CODE      FREQ   PCT PCT
   1.      4    2   2      13.         1     1  78      25.  [illegible]
   2.      5    3   5      14.         1     1  79      26.  [illegible]
   3.     19   10  15      15.         5     3  82      27.  [illegible]
   4.  [illegible] 17      17.  [illegible]     85      28.  [illegible]
   5.      1    1  18      18.  [illegible]     87      29.  [illegible]
   6.     21    1  29      19.  [illegible]     87      30.         1     1  98
   7.      2    1  30      20.         2     1  88      31.         2     1  99
   8.     89   50  79      21.  [illegible]     90      32.  [illegible]  100
  10.      1    1  77      22.  [illegible]     92
  12.      2    1  78      23.         1     1  92

                     M I S S I N G   D A T A
 CODE   FREQ          CODE    FREQ               CODE    FREQ
  98.  12180           99.      60

MEAN          9.935     STD ERR     0.523     MEDIAN        7.929
MODE          8.000     STD DEV     [illegible]  VARIANCE  [illegible]
KURTOSIS      1.473     SKEWNESS    1.376     RANGE        31.000
MINIMUM       1.000     MAXIMUM    32.000

VALID CASES     184     MISSING CASES 12240
```

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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTQ (CREATION DATE = 09/15/79)                               09/24/79            PAGE  128
SUBFILE   ALL

Q38A      DID SOMEONE ELSE COMPLETE FIN AID APPL ?

                                                       RELATIVE   ADJUSTED      CUM
                                           ABSOLUTE     FREQ       FREQ        FREQ
CATEGORY LABEL                    CODE       FREQ       (PCT)      (PCT)       (PCT)

YES COMPLETED                       1.       1048        8.4       14.6        14.6

YES ASSISTED                        2.   [illegible] [illegible] [illegible] [illegible]

NO                                  3.       2513       20.2       35.1       100.0

                                    8.   [illegible] [illegible]  MISSING      100.0

                                    9.       5046       40.6      MISSING      100.0
                                          -------    -------    -------
                                   TOTAL [illegible] [illegible]   100.0

MEAN           2.205      STD ERR         0.009      MEDIAN          2.284
MODE     [illegible]      STD DEV   [illegible]      VARIANCE  [illegible]
KURTOSIS      -0.833      SKEWNESS       -0.272
MINIMUM        1.000      MAXIMUM         3.000      RANGE           2.000

VALID CASES     7159      MISSING CASES [illegible]
```

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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q30B1      DID THE FIN AID OFF PROVIDE SERVICE ?

                                              RELATIVE   ADJUSTED     CUM
                                    ABSOLUTE    FREQ       FREQ       FREQ
CATEGORY LABEL               CODE     FREQ      (PCT)      (PCT)      (PCT)

NO                             0.     3590      28.9       78.4       78.4

YES                            1.      991       8.0       21.6      100.0

                               8.     7786      62.6     MISSING     100.0

                               9.       65       0.5     MISSING     100.0
                                    ------    ------     ------
                             TOTAL   12432     100.0      100.0

MEAN          0.216      STD ERR        0.006      MEDIAN          0.138
MODE          0.0        STD DEV        0.412      VARIANCE        0.170
KURTOSIS     -0.100      SKEWNESS       1.376      RANGE           1.000
MINIMUM       0.0        MAXIMUM        1.000

VALID CASES     4581     MISSING CASES   7851
```

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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79          PAGE 130

FILE     STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q3882      DID SOMEONE ELSE AT SCHOOL PROV SERV ?

                                                RELATIVE   ADJUSTED      CUM
                                     ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                  CODE     FREQ      (PCT)      (PCT)      (PCT)

NO                                0.     4310      34.7       94.1       94.1

YES                         [illegible] [illegible] [illegible] [illegible] [illegible]

                                  8.     7786      62.6     MISSING     100.0

                            [illegible] [illegible] [illegible] MISSING [illegible]
                                      -------    -------    -------
                              TOTAL     12432      100.0      100.0

MEAN          0.059      STD ERR     [illegible]    MEDIAN       [illegible]
MODE          0.0        STD DEV     [illegible]    VARIANCE     [illegible]
KURTOSIS     11.981      SKEWNESS    [illegible]    RANGE        [illegible]
MINIMUM       0.0        MAXIMUM     [illegible]

VALID CASES     4581       MISSING CASES   7851
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79          PAGE  131

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q3003     DID A PRIVATE FIRM PROVIDE SERVICE ?

                                                  RELATIVE   ADJUSTED      CUM
                                      ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                          FREQ       (PCT)      (PCT)      (PCT)

NO                             0.     4417         35.5       96.4        96.4

YES                            [illegible]

                               8.     7786         62.6    MISSING       100.0

                               [illegible]                  MISSING       100.0
                                     -------      -------    -------
                              TOTAL    12432        100.0      100.0

MEAN         0.036       STD ERR      0.003        MEDIAN      0.019
MODE         0.0         STD DEV      0.186        VARIANCE    0.035
KURTOSIS    22.996       SKEWNESS     4.999        RANGE       1.000
MINIMUM      0.0         MAXIMUM      1.000

VALID CASES    4581      MISSING CASES   7851
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STUDENT QUESTIONNAIRE TABULATIONS                                                       09/24/79              PAGE  132

FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

U3804     DID A FAMILY MEMBER PROVIDE SERVICE ?

                                                    RELATIVE   ADJUSTED      CUM
CATEGORY LABEL                 CODE    ABSOLUTE      FREQ        FREQ        FREQ
                                          FREQ       (PCT)       (PCT)       (PCT)
NO
                                 0.      1111         8.9        24.3        24.3
YES
                                 1.      3470        27.[illegible]      75.7       100.0

                                 8.      7786        62.6     MISSING       100.0

                                 9.        [illegible]       [illegible]     MISSING       100.0
                                        ------      ------      ------
                                TOTAL   12432       100.0       100.0

MEAN          0.757    STD ERR       0.006         MEDIAN        [illegible]
MODE          1.000    STD DEV       0.429         VARIANCE      0.184
KURTOSIS     -0.556    SKEWNESS     -1.202         RANGE         1.000
MINIMUM       0.0      MAXIMUM       1.000

VALID CASES    4581     MISSING CASES  7851
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STUDENT QUESTIONNAIRE TABULATIONS                                          09/24/79          PAGE  133

FILE    STUDENTO (CREATION DATE = 09/15/79)
SUBFILE   [illegible]

W3085      DID A FRIEND PROVIDE SERVICE ?

                                                     RELATIVE  ADJUSTED    CUM
                                          ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL                    CODE      FREQ      (PCT)     (PCT)     (PCT)
NO
                                   0.      4383      35.3      95.7      95.7
YES
                                   1.       198  [illegible] [illegible] [illegible]
                                   8.      7786      62.6    MISSING    100.0
                                   9. [illegible] [illegible]  MISSING    100.0
                                         ------    ------    ------
                               TOTAL      12432     100.0     100.0

MEAN            0.043      STD ERR          0.003      MEDIAN           0.023
MODE            0.0        STD DEV          0.203      VARIANCE         0.041
KURTOSIS       18.203      SKEWNESS         4.494      RANGE            1.000
MINIMUM         0.0        MAXIMUM          1.000

VALID CASES     4581       MISSING CASES   7851
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STUDENT QUESTIONNAIRE TABULATIONS                                                          09/24/79            PAGE  134

FILE   STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q3886      DID OTHER SPECIFY PROVIDE SERVICE ?

                                                  RELATIVE   ADJUSTED      CUM
                                       ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                  CODE     FREQ      (PCT)      (PCT)      (PCT)

NO                                0.     4464       35.9       97.4       97.4

YES                               1.      117        0.9        2.6      100.0

                                  8.     7786       62.6    MISSING      100.0

                                  9.       65        0.5    MISSING      100.0
                                       ------     ------     ------
                             TOTAL     12432      100.0      100.0

MEAN           0.026     STD ERR        0.002        MEDIAN          0.013
MODE           0.0       STD DEV        0.158        VARIANCE        0.025
KURTOSIS      34.219     SKEWNESS       6.017        RANGE           1.000
MINIMUM        0.0       MAXIMUM        1.000

VALID CASES     4581      MISSING CASES   7851
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STUDENT QUESTIONNAIRE TABULATIONS                                    09/26/79          PAGE  135

FILE   STUDENTD  (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q38BOTH    DID OTHER PROVIDE SERVICE ?

                                          RELATIVE  ADJUSTED     CUM
                               ABSOLUTE     FREQ      FREQ       FREQ
CATEGORY LABEL          CODE     FREQ       (PCT)     (PCT)      (PCT)

                          1.      64         0.5      73.6       73.6

                   [illegible]

                          5.       4         0.0       4.6       80.5

                   [illegible]

                          8.       4         0.0       4.6       86.2

                   [illegible]

                         11.       4         0.0       4.6       96.6

                   [illegible]

                          0.      30         0.2   MISSING      100.0

                         99.   [illegible]  [illegible]  MISSING  [illegible]
                               -------    ------    ------
                      TOTAL    12432       100.0     100.0

MEAN           2.920     STD ERR        0.387     MEDIAN        1.[illegible]
MODE           1.000     STD DEV        3.606     VARIANCE     13.003
KURTOSIS       1.210     SKEWNESS       1.635     RANGE        12.000
MINIMUM        1.000     MAXIMUM       13.000

VALID CASES      87      MISSING CASES 12345
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FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

LASTMON   LAST MONTH FOR AID TO BE AWARDED

                                                 RELATIVE   ADJUSTED      CUM
                                     ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL               CODE      FREQ       (PCT)      (PCT)      (PCT)

                               1.       399         3.2        8.9        8.9

                               2.  [illegible]  [illegible]  [illegible]  [illegible]

                               3.       142         1.1        3.2       15.3

                               4.  [illegible]  [illegible]  [illegible]  [illegible]

                               5.       254         2.0        5.7       24.1

                               6.  [illegible]  [illegible]  [illegible]  [illegible]

                               7.       375         3.0        8.4       38.9

                               8.  [illegible]  [illegible]  [illegible]  [illegible]

                               9.      1008         8.1       22.5       91.7

                              10.  [illegible]  [illegible]  [illegible]  [illegible]

                              11.       103         0.8        2.3       96.7

                              12.  [illegible]  [illegible]  [illegible]  [illegible]

                               0.      2903        23.4    MISSING      100.0

                              99.  [illegible]  [illegible]    MISSING  [illegible]
                                     ------      ------     ------
                            TOTAL     12432       100.0      100.0

MEAN           6.997     STD ERR         0.042      MEDIAN         7.655
MODE           8.000     STD DEV         2.782      VARIANCE       7.737
KURTOSIS       0.005     SKEWNESS       -0.641      RANGE         11.000
MINIMUM        1.000     MAXIMUM        12.000

VALID CASES     4483     MISSING CASES    7949
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STUDENT QUESTIONNAIRE TABULATIONS                                                09/24/79        PAGE 137

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE [illegible]

LASTDAY    LAST DATE FOR AMT TO BE AWARDED

                                             RELATIVE   ADJUSTED      CUM
                                 ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL            CODE     FREQ       (PCT)      (PCT)       (PCT)

                            1.     1060        8.5        27.9        27.9

                      [illegible]

                           15.      496        4.0        13.0        62.0

                      [illegible]

                           28.      651        5.2        17.1       100.0

                      [illegible]

                           99.     5046       40.6     MISSING       100.0
                                  -------    -------    -------
                         TOTAL    [illegible]

MEAN           10.791     STD ERR        0.164       MEDIAN       [illegible]
MODE            1.000     STD DEV      [illegible]   VARIANCE     [illegible]
KURTOSIS       -1.[illegible]     SKEWNESS     [illegible]   RANGE        27.000
MINIMUM         1.000     MAXIMUM       28.000

VALID CASES     3801      MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79          PAGE  130

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

AWDNOSL   WERE YOU AWARDED A NAT STUDENT LOAN ?

                                                 RELATIVE  ADJUSTED     CUM
                                    ABSOLUTE       FREQ      FREQ       FREQ
CATEGORY LABEL              CODE      FREQ        (PCT)     (PCT)      (PCT)

YES                           1.      1917         15.4      33.7       33.7

NO                            2.      3777         30.4      66.3      100.0

                              0.      1692         13.6    MISSING     100.0

                              9.      5046         40.6    MISSING     100.0
                                    -------      -------   -------
                           TOTAL     12432        100.0     100.0

MEAN             1.663     STD ERR       0.006      MEDIAN        1.746
MODE             2.000     STD DEV       0.473      VARIANCE      0.223
KURTOSIS        -1.522     SKEWNESS     -0.691      RANGE         1.000
MINIMUM          1.000     MAXIMUM       2.000

VALID CASES     5694       MISSING CASES   6738
```

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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79          PAGE  139

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q41A      WERE YOU COUNSELED BY FIN AID OFFICER ?

                                                RELATIVE  ADJUSTED     CUM
                                     ABSOLUTE     FREQ      FREQ       FREQ
CATEGORY LABEL               CODE      FREQ      (PCT)     (PCT)      (PCT)

YES                            1.      1103       8.9       58.9       58.9

NO                             2.       771   [illegible] [illegible] [illegible]

                               0.        43       0.3     MISSING     100.0

                               9.     10515   [illegible]  MISSING [illegible]
                                     -------    ------     ------
                            TOTAL     12432     100.0      100.0

MEAN          1.411     STD ERR        0.011      MEDIAN       1.351
MODE          1.000     STD DEV        0.492      VARIANCE     0.242
KURTOSIS     -1.872     SKEWNESS       0.360      RANGE        1.000
MINIMUM       1.000     MAXIMUM        2.000

VALID CASES    1874     MISSING CASES 10558
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STUDENT QUESTIONNAIRE TABULATIONS
FILE     STUDENTQ (CREATION DATE = 09/15/79)                          [illegible]          PAGE  140
SUBFILE   ALL

Q41B       WHEN WERE YOU COUNSELED BY FIN AID OFF ?

                                                   RELATIVE   ADJUSTED     CUM
CATEGORY LABEL                  CODE   ABSOLUTE      FREQ       FREQ       FREQ
                                         FREQ        (PCT)      (PCT)      (PCT)
PRIOR TO RECV LOAN               1.       663        5.3        61.0       61.0
UPON RECV LOAN                   2.       [illegible] [illegible] [illegible] [illegible]
AFTER RECV LOAN                  3.       124        1.0        11.4      100.0
                                 0.        17        0.1      MISSING    100.0
                                 9.     11329       91.1      MISSING    100.0
                                        -------    -------    -------
                                TOTAL   [illegible] 100.0      100.0

MEAN            1.504     STD ERR        0.021       MEDIAN        1.319
MODE            1.000     STD DEV        [illegible] VARIANCE      [illegible]
KURTOSIS       -0.249     SKEWNESS       [illegible] RANGE         2.000
MINIMUM         1.000     MAXIMUM        3.000

VALID CASES     [illegible]  MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)                                  09/24/79        PAGE  142
SUBFILE   ALL

UGAPPREJ  WAS BEOG APP REJECTED?

                                                 RELATIVE  ADJUSTED    CUM
                                      ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL                  CODE    FREQ      (PCT)     (PCT)     (PCT)

YES                              1.     1757      14.1      35.0      35.0

NO                               2.     3269      26.3      65.0     100.0

                                 0.      900       7.2    MISSING    100.0

                                 9.     6506      52.3    MISSING    100.0
                                      -------   -------   -------
                             TOTAL     12432     100.0     100.0

MEAN          1.650     STD ERR       0.007     MEDIAN       1.731
MODE          2.000     STD DEV       0.477     VARIANCE     0.227
KURTOSIS     -1.602     SKEWNESS     -0.631     RANGE        1.000
MINIMUM       1.000     MAXIMUM       2.000

VALID CASES    5026     MISSING CASES  7406
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STUDENT QUESTIONNAIRE TABULATIONS                                                  09/24/79          PAGE  141

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q42        WERE YOU TOLD THE TERMS OF REPAYMENT ?

                                                    RELATIVE   ADJUSTED      CUM
                                        ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL                   CODE     FREQ       (PCT)      (PCT)       (PCT)

YES                                1.     1227         9.9       66.7        66.7

NO                                 2.      612         4.9       33.3       100.0

                                   0.       78         0.6     MISSING      100.0

                                   9.    10515        84.6     MISSING      100.0
                                        ------      ------     ------
                               TOTAL     12432       100.0      100.0

MEAN            1.333      STD ERR         0.011       MEDIAN          1.250
MODE            1.000      STD DEV         0.471       VARIANCE        0.222
KURTOSIS       -1.497      SKEWNESS        0.710       RANGE           1.000
MINIMUM         1.000      MAXIMUM         2.000

VALID CASES     1839       MISSING CASES 10593
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STUDENT QUESTIONNAIRE TABULATIONS                                          09/24/79          PAGE  163

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q43B       DID YOU CLARIFY THE INFORMATION ?

                                                     RELATIVE   ADJUSTED      CUM
                                         ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE      FREQ       (PCT)      (PCT)      (PCT)

YES                                1.      1534        12.3       89.1       89.1

NO                                 2.       188         1.5       10.9      100.0

                                   0.        35         0.3    MISSING      100.0

                                   9.     10675        85.9    MISSING      100.0
                                          -----       -----      -----
                                 TOTAL    12432       100.0      100.0

MEAN           1.109      STD ERR        0.008      MEDIAN           1.061
MODE           1.000      STD DEV        0.312      VARIANCE         0.097
KURTOSIS       4.298      SKEWNESS       2.509      RANGE            1.000
MINIMUM        1.000      MAXIMUM        2.000

VALID CASES     1722      MISSING CASES 10710
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STUDENT QUESTIONNAIRE TABULATIONS                                        [illegible]/24/79        PAGE 144

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q43C1     WHY WAS INFORMATION NOT CLARIFIED ?

                  ADJ  CUM                          ADJ  CUM                           ADJ  CUM
  CODE    FREQ    PCT  PCT        CODE     FREQ     PCT  PCT        CODE     FREQ      PCT  PCT

    1.      69     52   52          7.        5       4   79         18.        2        2  [illegible]
    2.      13     10   62          8.        3       2   81         19.        5        4  [illegible]
    3.       2      2   63          9.        1       1   82         20.        1        1  [illegible]
    4.       3      2   65         10.        1       1  [illegible] [illegible]  1      1  [illegible]
    5.      12      9   74         11.        1       1  [illegible]  23.        1        1  [illegible]
    6.       1      1   75         12.        1       1   90         24.        1        1  100

                            M I S S I N G   D A T A
  CODE    FREQ                    CODE     FREQ                     CODE     FREQ

    0.      59                     99.  [illegible]

MEAN            4.647        STD ERR          0.509        MEDIAN          1.464
MODE            1.000        STD DEV    [illegible]        VARIANCE   [illegible]
KURTOSIS        2.5[illegible] SKEWNESS       1.84[illegible] RANGE        23.000
MINIMUM         1.000        MAXIMUM         24.000

VALID CASES       133        MISSING CASES [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                             09/24/79        PAGE  145

FILE    STUDENT0  (CREATION DATE = 09/15/79)
SUBFILE   ALL

W43C2      WHY WAS INFORMATION NOT CLARIFIED ?

                                                     RELATIVE   ADJUSTED     CUM
                                         ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE      FREQ       (PCT)      (PCT)      (PCT)

                                  1.          3         0.0       33.3       33.3

                                  2.          1         0.0       11.1       44.4

                                  4.          1         0.0       11.1       55.6

                                  5.          1         0.0       11.1       66.7

                                 10.          2         0.0       22.2       88.9

                                 17.          1         0.0       11.1      100.0

                                  0.        179         1.4     MISSING     100.0

                                 99.      12244        98.5     MISSING     100.0
                                         ------      ------     ------
                               TOTAL      12432       100.0      100.0

MEAN            5.667       STD ERR          1.856       MEDIAN          4.000
MODE            1.000       STD DEV          5.568       VARIANCE       31.000
KURTOSIS        0.673       SKEWNESS         1.173       RANGE          16.000
MINIMUM         1.000       MAXIMUM         17.000

VALID CASES        9       MISSING CASES 12423
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STUDENT QUESTIONNAIRE TABULATIONS                                                   09/24/79          PAGE  148

FILE   STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q44A       WERE YOU EVER VALIDATED BY USOE?

                                                     RELATIVE   ADJUSTED     CUM
                                          ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE       FREQ      (PCT)      (PCT)      (PCT)

YES                                1.        522        4.2       10.3       10.3

NO                                 2.   [illegible]  [illegible]  [illegible]  [illegible]

                                   0.        869        7.0    MISSING      100.0

                                   9.   [illegible]  [illegible]  MISSING  [illegible]
                                          -------     -------    -------
                                TOTAL      12432      100.0      100.0

MEAN          1.897      STD ERR        0.004       MEDIAN        1.942
MODE          2.000      STD DEV        0.304       VARIANCE      0.093
KURTOSIS      4.009      SKEWNESS      -2.609       RANGE         1.000
MINIMUM       1.000      MAXIMUM        2.000

VALID CASES     5057      MISSING CASES   7375
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79       PAGE  147

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   AGG

U44B       HOW MANY HOURS WERE SPENT GETTING INFO?

                                                   RELATIVE   ADJUSTED      CUM
                                       ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL                 CODE      FREQ       (PCT)      (PCT)       (PCT)

                                 1.     12212        98.2       98.9        98.9

                               [illegible]   [illegible]    [illegible]   [illegible]   99.1

                                20.        45         0.4        0.4        99.5

                               [illegible]   [illegible]    [illegible]   [illegible]   [illegible]

                                40.        24         0.2        0.2        99.7

                               [illegible]   [illegible]    [illegible]   [illegible]   100.0

                                 0.        90         0.7    MISSING       100.0
                                       -------     -------    -------
                              TOTAL     12432       100.0      100.0

MEAN             1.303      STD ERR        0.030      MEDIAN          1.048
MODE             1.000      STD DEV        [illegible]      VARIANCE        [illegible]
KURTOSIS       161.999      SKEWNESS      12.397      RANGE          49.000
MINIMUM          1.000      MAXIMUM       50.000

VALID CASES    12342        MISSING CASES     90
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                                                                                    09/24/79        PAGE 149
STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTO (CREATION DATE = 09/15/79)
SUBFILE  . ALL

U44C       WAS BEOG ADJ ON THE BASIS OF VERIF ?

                                               RELATIVE  ADJUSTED    CUM
                                  ABSOLUTE       FREQ      FREQ      FREQ
CATEGORY LABEL             CODE     FREQ        (PCT)     (PCT)     (PCT)

NO                           1.      262          2.1      56.8      56.8

YES BEOG INCREASED           2.  [illegible]  [illegible]  [illegible]  [illegible]

                             3.       71          0.6      15.4     100.0

                             8.       91          0.7    MISSING    100.0

                             9.    11910         95.0    MISSING    100.0
                                 -------      -------    -------
                         TOTAL  [illegible]  [illegible]  [illegible]

MEAN          1.586    STD ERR      0.035      MEDIAN      1.3[illegible]
MODE          1.000    STD DEV   [illegible]   VARIANCE  [illegible]
KURTOSIS  [illegible]  SKEWNESS  [illegible]   RANGE       2.000
MINIMUM       1.000    MAXIMUM      3.000

VALID CASES     461    MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

UGSUPPAP  DID YOU SUBMIT BEOG CORRECTION,SUPP FORM

                                            RELATIVE  ADJUSTED     CUM
                               ABSOLUTE      FREQ      FREQ        FREQ
CATEGORY LABEL          CODE     FREQ       (PCT)     (PCT)       (PCT)

YES CORRECTION            1.     1281        10.3      26.1        26.1
YES SUPP FORM             2.      319  [illegible] [illegible] [illegible]
NO                        3.     3311        26.6      67.4       100.0
                          0.     1015  [illegible]  MISSING  [illegible]
                          9.     6506        52.3   MISSING       100.0
                                -------     -------   -------
                        TOTAL   12432       100.0     100.0

MEAN         2.413     STD ERR        0.012     MEDIAN       [illegible]
MODE   [illegible]     STD DEV  [illegible]     VARIANCE     [illegible]
KURTOSIS  -1.[illegible]  SKEWNESS  -[illegible]  RANGE      2.000
MINIMUM      1.000     MAXIMUM        3.000

VALID CASES   4911     MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                          09/24/79        PAGE  150

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

U4581      WHY! CHANGE OF NAME?

                                                   RELATIVE  ADJUSTED    CUM
                                        ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL                   CODE     FREQ      (PCT)     (PCT)     (PCT)

NO                                 0.     1482       11.9      98.8      98.8

YES                                1.       18        0.1       1.2     100.0

                                   8.    10832       87.1    MISSING    100.0

                                   9.      100        0.8    MISSING    100.0
                                        ------     ------    ------
                               TOTAL     12432      100.0     100.0

MEAN           0.012     STD ERR         0.003        MEDIAN           0.006
MODE           0.0       STD DEV         0.109        VARIANCE         0.012
KURTOSIS      78.611     SKEWNESS        8.973        RANGE            1.000
MINIMUM        0.0       MAXIMUM         1.000

VALID CASES     1500     MISSING CASES 10932
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                                                                              [illegible]        PAGE  181
STUDENT QUESTIONNAIRE TABULATIONS

FILE     STUDENTU (CREATION DATE = 09/15/79)
SUBFILE  ALL

Q45B2      WHY: CHANGE OF ADRESS?

                                             RELATIVE   ADJUSTED     CUM
                                  ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL            CODE      FREQ       (PCT)      (PCT)      (PCT)

NO                         0.       1409       11.3       93.9       93.9

YES                        1.         91      [illegible] [illegible] 100.0

                           8.      10832       87.1     MISSING     100.0

                           9.        100    [illegible]  MISSING     100.0
                                  ------     ------     ------
                          TOTAL    12432      100.0      100.0

MEAN          0.061     STD ERR    [illegible]     MEDIAN     [illegible]
MODE          0.0       STD DEV    [illegible]     VARIANCE   [illegible]
KURTOSIS     11.591     SKEWNESS   [illegible]     RANGE      [illegible]
MINIMUM       0.0       MAXIMUM    [illegible]

VALID CASES     1500     MISSING CASES 10932
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79          PAGE  15[illegible]

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

W45B3      WHY: INCORRECT INFORMATION?

                                                      RELATIVE   ADJUSTED     CUM
                                           ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL                     CODE      FREQ       (PCT)      (PCT)      (PCT)

NO                                   0.       279        2.2       18.6       18.6

YES                                  1.  [illegible]  [illegible] [illegible] [illegible]

                                     0.     10832       87.1     MISSING     100.0

                                [illegible] [illegible] [illegible] MISSING [illegible]
                                          -------     -------    -------
                                 TOTAL     12432       100.0      100.0

MEAN          0.814       STD ERR        0.010        MEDIAN        [illegible]
MODE          1.000       STD DEV        0.389        VARIANCE      0.152
KURTOSIS      0.611       SKEWNESS      -1.610        RANGE         1.000
MINIMUM       0.0         MAXIMUM        1.000

VALID CASES    1500       MISSING CASES 10932
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                                                                              [illegible]         PAGE  193
STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

W45B4      WHY: DIVORCE?

                                                  RELATIVE   ADJUSTED      CUM
                                       ABSOLUTE     FREQ       FREQ        FREQ
CATEGORY LABEL                 CODE      FREQ      (PCT)      (PCT)       (PCT)

NO                               0.      1465      11.8       97.7        97.7

YES                              1.   [illegible] [illegible] [illegible] [illegible]

                                 8.     10832      87.1      MISSING     100.0

                                 9.   [illegible] [illegible]  MISSING   [illegible]
                                       -------    -------    -------
                               TOTAL    12432      100.0      100.0

MEAN           0.023     STD ERR      [illegible]     MEDIAN       [illegible]
MODE           0.0       STD DEV      [illegible]     VARIANCE     [illegible]
KURTOSIS      30.012     SKEWNESS     [illegible]     RANGE        1.000
MINIMUM        0.0       MAXIMUM      [illegible]

VALID CASES     1500     MISSING CASES 10932
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STUDENT QUESTIONNAIRE TABULATIONS                                            09/24/79         PAGE  154

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE  ALL

Q4505      WHY! SEPERATION?                   ?

                                                   RELATIVE   ADJUSTED     CUM
                                          ABSOLUTE   FREQ       FREQ      FREQ
CATEGORY LABEL                     CODE     FREQ     (PCT)      (PCT)     (PCT)

NO                                   0.     1474      11.9       98.3      98.3

YES                                  1.       26       0.2        1.7     100.0

                                     8.    10832      87.1    MISSING     100.0

                                     9.      100       0.8    MISSING     100.0
                                          ------    ------     ------
                                   TOTAL   12432     100.0      100.0

MEAN          0.017     STD ERR        0.003     MEDIAN       [illegible]
MODE          0.0       STD DEV        0.131     VARIANCE     0.017
KURTOSIS     52.390     SKEWNESS   [illegible]   RANGE        1.000
MINIMUM       0.0       MAXIMUM        1.000

VALID CASES    1500     MISSING CASES 10932
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STUDENT QUESTIONNAIRE TABULATIONS                                          09/24/79        PAGE  155

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

U4586      WHY: DEATH

                                                     RELATIVE   ADJUSTED     CUM
                                         ABSOLUTE      FREQ        FREQ      FREQ
CATEGORY LABEL                   CODE       FREQ       (PCT)       (PCT)     (PCT)

NO                                 0.       1464        11.8        97.6      97.6

YES                                1.         36         0.3         2.4     100.0

                                   8.      10832        87.1     MISSING     100.0

                                   9.        100         0.8     MISSING     100.0
                                          ------      ------      ------
                                TOTAL      12432       100.0       100.0

MEAN          0.024     STD ERR        0.004     MEDIAN         0.012
MODE          0.0       STD DEV        0.153     VARIANCE       0.023
KURTOSIS     36.810     SKEWNESS       6.226     RANGE          1.000
MINIMUM       0.0       MAXIMUM        1.000

VALID CASES    1500     MISSING CASES 10932
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STUDENT QUESTIONNAIRE TABULATIONS                                    09/24/79        PAGE  156

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q4587      WHY: DISASTER OR DISABILITY

                                              RELATIVE   ADJUSTED      CUM
                                  ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL              CODE    FREQ       (PCT)      (PCT)       (PCT)

NO                            0.     1425       11.5       95.0        95.0

YES                           1.       75       [illegible] [illegible] [illegible]

                              8.    10832       87.1     MISSING      100.0

                              9.      100       [illegible] MISSING   100.0
                                   -------    -------    -------
                           TOTAL    12432      100.0      100.0

MEAN           0.050     STD ERR     [illegible]     MEDIAN      [illegible]
MODE           0.0       STD DEV     0.218           VARIANCE    [illegible]
KURTOSIS      15.107     SKEWNESS    4.136           RANGE       1.000
MINIMUM        0.0       MAXIMUM     1.000

VALID CASES     1500     MISSING CASES 10932
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79        PAGE  157

FILE    STUDENTO (CREATION DATE = 09/15/79)
SUBFILE    ALL

W4588      WHY: OTHER REASON?

                                               RELATIVE  ADJUSTED    CUM
                                    ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL              CODE      FREQ      (PCT)     (PCT)     (PCT)

NO                           0.       1381      11.1      92.1      92.1

YES                          1.        119       1.0       7.9     100.0

                             8.      10832      87.1   MISSING     100.0

                             9.        100       0.8   MISSING     100.0
                                    ------    ------    ------
                          TOTAL      12432     100.0     100.0

MEAN           0.079      STD ERR         0.007      MEDIAN         0.043
MODE           0.0        STD DEV         0.270      VARIANCE       0.073
KURTOSIS       7.721      SKEWNESS        3.110      RANGE          1.000
MINIMUM        0.0        MAXIMUM         1.000

VALID CASES    1500       MISSING CASES 10932
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STUDENT QUESTIONNAIRE TABULATIONS                                                  09/26/79        PAGE  158

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q45BOTH   DID YOU SUB THIS CORR BEC OF OTH ?

                                              RELATIVE   ADJUSTED     CUM
                                  ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL             CODE     FREQ       (PCT)      (PCT)      (PCT)

                             1.        2         0.0        3.3        3.3

                             2.   [illegible]

                             3.        5         0.0        8.2       19.7

                           [illegible]

                             5.        4         0.0        6.6       41.0

                           [illegible]

                             9.        3         0.0        4.9       63.9

                            10.   [illegible]

                            12.        3         0.0        4.9       75.4

                            13.   [illegible]

                            15.        1         0.0        1.6       85.2

                            16.   [illegible]

                            18.        8         0.1       13.1      100.0

                             0.       58         0.0     MISSING     100.0

                            99.    12313        99.0     MISSING     100.0
                                  -------     -------    -------
                         TOTAL     12432       100.0      100.0

MEAN           8.066      STD ERR        [illegible]     MEDIAN          6.000
MODE       [illegible]    STD DEV        [illegible]     VARIANCE    [illegible]
KURTOSIS  [illegible]     SKEWNESS       [illegible]     RANGE          17.000
MINIMUM        1.000      MAXIMUM        18.000

VALID CASES       61      MISSING CASES  12371
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STUDENT QUESTIONNAIRE TABULATIONS                                        09/24/79        PAGE 159

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

U45C        DID CHANGE MAKE YOU ELIGIBLE?

                                                   RELATIVE   ADJUSTED      CUM
                                       ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL                   CODE    FREQ       (PCT)      (PCT)       (PCT)

YES                                1.    1232        9.9        82.2        82.2

NO                                 2.    [illegible] [illegible] 17.8      100.0

                                   0.     102        0.8      MISSING      100.0

                                   9.   10832       87.1      MISSING      100.0
                                        ------     ------      ------
                              TOTAL     12432      100.0       100.0

MEAN          1.178     STD ERR        0.010     MEDIAN          1.108
MODE          1.000     STD DEV        0.382     VARIANCE        0.146
KURTOSIS      0.854     SKEWNESS       1.689     RANGE           1.000
MINIMUM       1.000     MAXIMUM        2.000

VALID CASES    1498     MISSING CASES 10934
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79          PAGE 160

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

U450       DID FAO SUGGEST CHANGE?

                                                    RELATIVE  ADJUSTED      CUM
                                         ABSOLUTE     FREQ      FREQ        FREQ
CATEGORY LABEL                  CODE       FREQ      (PCT)     (PCT)       (PCT)

YES                               1.        596        4.8      39.5        39.5

NO                                [illegible]

                                  0.         93        0.7    MISSING      100.0

                                  [illegible]                 MISSING
                                         -------    -------   -------
                                 TOTAL    12432      100.0     100.0

MEAN              1.605     STD ERR         0.013     MEDIAN         [illegible]
MODE              2.000     STD DEV         0.489     VARIANCE       [illegible]
KURTOSIS         -1.819     SKEWNESS       -0.428     RANGE          [illegible]
MINIMUM           1.000     MAXIMUM   [illegible]

VALID CASES     1507        MISSING CASES 10925
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STUDENT QUESTIONNAIRE TABULATIONS                                                09/24/79       PAGE  161

FILE   STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q45E      DID FIN AID COUNSELOR ASST IN CHG ?

                                                RELATIVE   ADJUSTED    CUM
                                     ABSOLUTE     FREQ       FREQ      FREQ
CATEGORY LABEL                 CODE     FREQ      (PCT)      (PCT)     (PCT)

YES                              1.      535        4.3       35.4      35.4

NO                               2.      978        7.9       64.6     100.0

                                 0.       87        0.7     MISSING    100.0

                                 9.    10832       87.1     MISSING    100.0
                                      ------     ------     ------
                             TOTAL     12432      100.0      100.0

MEAN          1.646     STD ERR        0.012     MEDIAN         1.726
MODE          2.000     STD DEV        0.478     VARIANCE       0.229
KURTOSIS     -1.626     SKEWNESS      -0.613     RANGE          1.000
MINIMUM       1.000     MAXIMUM        2.000

VALID CASES     1513     MISSING CASES 10919
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UDENT QUESTIONNAIRE TABULATIONS                                            09/24/79       PAGE  163

LE    STUDENTU (CREATION DATE = 09/15/79)
FILE   ALL

68B)      DID NOT TRY, I DID NOT NEED IT

                                                  RELATIVE   ADJUSTED     CUM
                                        ABSOLUTE    FREQ       FREQ       FREQ
ATEGORY LABEL                    CODE     FREQ      (PCT)      (PCT)      (PCT)

O                                  0.     2081      16.7       60.0       60.0

ES                                 1.     1389      11.2       40.0      100.0

                                   8.     8389      67.5     MISSING     100.0

                                   9.      573       4.6     MISSING     100.0
                                        -------    -------    -------
                                 TOTAL   12432     100.0      100.0

EAN          0.400     STD ERR        0.008     MEDIAN         0.334
ODE          0.0       STD DEV        0.490     VARIANCE       0.240
URTOSIS     -1.835     SKEWNESS       0.407     RANGE          1.000
INIMUM       0.0       MAXIMUM        1.000

ALID CASES     3470    MISSING CASES   8962
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79        PAGE  166

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q46B2     DID NOT TRY, DID NOT THINK I QUALIFIED

                                                      RELATIVE  ADJUSTED       CUM
                                            ABSOLUTE     FREQ      FREQ        FREQ
CATEGORY LABEL                        CODE     FREQ     (PCT)     (PCT)       (PCT)

NO                                      0.     3232      26.0      93.1        93.1

YES                                     1.      238  [illegible]  [illegible]  [illegible]

                                        8.     8389      67.5   MISSING       100.0

                                        9.  [illegible]  [illegible]  MISSING  [illegible]
                                             -------   -------   -------
                                   TOTAL    12432     100.0     100.0

MEAN          0.069      STD ERR       0.004      MEDIAN        0.037
MODE          0.0        STD DEV       0.253      VARIANCE      0.064
KURTOSIS      9.669      SKEWNESS      3.415      RANGE         1.000
MINIMUM       0.0        MAXIMUM       1.000

VALID CASES     3470       MISSING CASES   8962
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STUDENT QUESTIONNAIRE TABULATIONS
FILE    STUDENTU (CREATION DATE = 09/15/79)                                          09/24/79          PAGE  169
SUBFILE   ALL

W4683      DID NOT TRY, DIDNT WANT DEBT

                                                    RELATIVE   ADJUSTED      CUM
                                        ABSOLUTE      FREQ       FREQ        FREQ
CATEGORY LABEL                   CODE      FREQ      (PCT)      (PCT)       (PCT)
NO
                                   0.      1715      13.8       49.4        49.4
YES
                                   1.  [illegible] [illegible] [illegible]  100.0
                                   8.      8389      67.5     MISSING      100.0
                                   9.  [illegible] [illegible] MISSING     100.0
                                        -------    -------    -------
                                 TOTAL    12432     100.0      100.0

MEAN           0.506     STD ERR          0.008          MEDIAN        [illegible]
MODE           1.000     STD DEV          0.500          VARIANCE      0.250
KURTOSIS      -2.001     SKEWNESS        -0.023          RANGE         1.000
MINIMUM        0.0       MAXIMUM          1.000

VALID CASES     3470      MISSING CASES   8962
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79        PAGE  168

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

Q46B4      DID NOT TRY, FORMS WERE DIF TO COMP

                                                       RELATIVE   ADJUSTED      CUM
                                          ABSOLUTE       FREQ       FREQ        FREQ
CATEGORY LABEL                     CODE     FREQ        (PCT)      (PCT)       (PCT)

NO                                   0.     3430         27.6       98.8        98.8

YES                                  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]

                                     8.     8389         67.5     MISSING      100.0

                                     [illegible]  [illegible]  [illegible]  MISSING  [illegible]
                                          -------      -------    -------
                                  TOTAL    12432        100.0      100.0

MEAN           0.012      STD ERR      [illegible]      MEDIAN       [illegible]
MODE           0.0        STD DEV      [illegible]      VARIANCE     [illegible]
KURTOSIS      81.081      SKEWNESS     [illegible]      RANGE        [illegible]
MINIMUM        0.0        MAXIMUM      [illegible]

VALID CASES    3470       MISSING CASES   8962
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STUDENT QUESTIONNAIRE TABULATIONS                                                    09/24/79        PAGE  167

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

U4605      DID NOT TRY, COULDN'T FIND LENDER

                                                 RELATIVE   ADJUSTED      CUM
                                    ABSOLUTE       FREQ       FREQ        FREQ
CATEGORY LABEL               CODE     FREQ        (PCT)      (PCT)       (PCT)

NO                             0.     3322         26.7       95.7        95.7

YES                            1.     [illegible]  [illegible] [illegible] [illegible]

                               8.     8389         67.5      MISSING     100.0

                               9.     [illegible]  [illegible] MISSING   100.0
                                    -------      -------    -------
                            TOTAL    12432        100.0      100.0

MEAN          0.043      STD ERR      0.003          MEDIAN       0.022
MODE          0.0        STD DEV      0.202          VARIANCE     0.041
KURTOSIS     1[illegible].519  SKEWNESS  4.[illegible]  RANGE      1.000
MINIMUM       0.0        MAXIMUM      1.000

VALID CASES    3470      MISSING CASES  8962
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STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

U4686     DID NOT TRY, OTHER REASON

                                                 RELATIVE  ADJUSTED    CUM
                                       ABSOLUTE    FREQ      FREQ      FREQ
CATEGORY LABEL                   CODE    FREQ     (PCT)     (PCT)     (PCT)

NO                                 0.    2999      24.1      86.4      86.4

YES                                1.     471       3.8      13.6     100.0

                                   8.    8389      67.5    MISSING    100.0

                                   9.     573       4.6    MISSING    100.0
                                       ------    ------    ------
                              TOTAL     12432     100.0     100.0

MEAN        0.136     STD ERR     0.006       MEDIAN      [illegible]
MODE        0.0       STD DEV     0.343       VARIANCE    0.117
KURTOSIS    2.530     SKEWNESS    2.120       RANGE       1.000
MINIMUM     0.0       MAXIMUM     1.000

VALID CASES    3470       MISSING CASES   8962
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FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   [illegible]

U46BOTH   DID NOT TRY BEC OF OTHER

              ADJ CUM                      ADJ CUM                       ADJ CUM
 CODE   FREQ  PCT PCT    CODE    FREQ  PCT PCT     CODE     FREQ  PCT PCT
   1.    285   70  70      9.    [illegible]
   2.     13    3  73     10.    [illegible]
   3.      8    2  75     11.    [illegible]
   4.  [illegible]        12.    [illegible]
   5.  [illegible]        13.    [illegible]
   6.     39   10  87     14.    [illegible]                24.        1    0 100
   7.      3    1  88     15.    [illegible]
   8.      6    1  89     16.    [illegible]

                        M I S S I N G   D A T A
 CODE   FREQ              CODE   FREQ            CODE   FREQ
   0.     63               99.  11961

MEAN          3.321      STD ERR        0.239      MEDIAN        [illegible]
MODE          1.000      STD DEV        4.772      VARIANCE      [illegible]
KURTOSIS      5.724      SKEWNESS       2.462      RANGE         23.000
MINIMUM       1.000      MAXIMUM       [illegible]

VALID CASES     400      MISSING CASES 12024
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STUDENT QUESTIONNAIRE TABULATIONS

FILE     STUDENTU (CREATION DATE = 09/15/79)                        09/24/79          PAGE 178
SUBFILE  ACL

RECVGSL:  DID YOU RECEIVE A GSL ?

                                               RELATIVE   ADJUSTED    CUM
                                    ABSOLUTE     FREQ       FREQ      FREQ
CATEGORY LABEL             CODE       FREQ      (PCT)      (PCT)     (PCT)
YES                          1.       1532       12.3       85.0      85.0
NO                           2.        270      [illegible] [illegible] [illegible]
                             0.        106        0.9     MISSING    100.0
                             9.   [illegible] [illegible] MISSING   [illegible]
                                    -------    -------    -------
                           TOTAL     12432      100.0      100.0

MEAN          1.150      STD ERR      [illegible]    MEDIAN      [illegible]
MODE          1.000      STD DEV      0.357          VARIANCE    0.127
KURTOSIS      1.859      SKEWNESS     1.964          RANGE       1.000
MINIMUM       1.000      MAXIMUM      2.000

VALID CASES   1802       MISSING CASES 10630
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STUDENT QUESTIONNAIRE TABULATIONS                                                  09/24/79         PAGE  171

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q47B1      LENDER REJECTED-FAM WASNT ESTAB CUST

                                              RELATIVE   ADJUSTED      CUM
                               ABSOLUTE         FREQ       FREQ        FREQ
CATEGORY LABEL          CODE     FREQ           (PCT)      (PCT)       (PCT)

NO                        0.      150            1.2        83.8        83.8

YES                       1.       29            0.2        16.2       100.0

                          8.    12162           97.8     MISSING       100.0

                          9.       91            0.7     MISSING       100.0
                               -------        -------    -------
                       TOTAL    12432          100.0       100.0

MEAN          0.162     STD ERR          0.028      MEDIAN          0.097
MODE          0.0       STD DEV          0.369      VARIANCE        0.137
KURTOSIS      1.439     SKEWNESS         1.850      RANGE           1.000
MINIMUM       0.0       MAXIMUM          1.000

VALID CASES      179     MISSING CASES 12253
```

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                                                                                      09/26/79          PAGE  172
STUDENT QUESTIONNAIRE TABULATIONS

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

W47B2      LENDER REJECTED-I WAS A FRESHMAN

                                                  RELATIVE   ADJUSTED      CUM
                                     ABSOLUTE       FREQ       FREQ        FREQ
CATEGORY LABEL              CODE       FREQ         (PCT)      (PCT)       (PCT)

NO                            0.        167          1.3        93.3        93.3

YES                           1.         12          0.1         6.7       100.0

                              8.      12162         97.8     MISSING       100.0

                              9.         91          0.7     MISSING       100.0
                                     -------      -------     -------
                            TOTAL     12432        100.0       100.0

MEAN            0.067     STD ERR        [illegible]     MEDIAN        [illegible]
MODE            0.0       STD DEV        0.251           VARIANCE      0.063
KURTOSIS       10.308     SKEWNESS       3.492           RANGE         1.000
MINIMUM         0.0       MAXIMUM        1.000

VALID CASES       179     MISSING CASES 12253
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STUDENT QUESTIONNAIRE TABULATIONS                                                     09/24/79          PAGE  173

FILE   STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q47B3     LENDER REJECTED-I WAS ENR IN VOC COUR

                                              RELATIVE  ADJUSTED     CUM
                                   ABSOLUTE     FREQ      FREQ      FREQ
CATEGORY LABEL              CODE     FREQ       (PCT)     (PCT)     (PCT)

NO                            0.      174        1.4      97.2      97.2

YES                           1.        5        0.0       2.8     100.0

                              8.    12162       97.8   MISSING     100.0

                              9.       91        0.7   MISSING     100.0
                                   ------     ------    ------
                           TOTAL    12432      100.0     100.0

MEAN           0.028     STD ERR        0.012        MEDIAN          0.014
MODE           0.0       STD DEV        0.165        VARIANCE        0.027
KURTOSIS      31.742     SKEWNESS       5.770        RANGE           1.000
MINIMUM        0.0       MAXIMUM        1.000

VALID CASES      179     MISSING CASES 12253
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FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q47B4      LENDER REJECTED-I DIDNT QUAL FOR SUBSIDY

                                             RELATIVE  ADJUSTED    CUM
                                 ABSOLUTE      FREQ      FREQ      FREQ
CATEGORY LABEL             CODE    FREQ        (PCT)     (PCT)     (PCT)

NO                           0.     154         1.2      86.0      86.0

YES                          1.      25         0.2      14.0     100.0

                             8.   12162        97.8   MISSING     100.0

                             9.      91         0.7   MISSING     100.0
                                  -------     -------   -------
                         TOTAL    12432       100.0     100.0

MEAN          0.140    STD ERR       0.026    MEDIAN        0.081
MODE          0.0      STD DEV       0.348    VARIANCE      0.121
KURTOSIS      2.423    SKEWNESS      2.097    RANGE         1.000
MINIMUM       0.0      MAXIMUM       1.000

VALID CASES      179     MISSING CASES 12253
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STUDENT QUESTIONNAIRE TABULATIONS                                      09/24/79        PAGE  175

FILE    STUDENTQ  (CREATION DATE = 09/15/79)
SUBFILE   ALL

Q4785     LENDER REJECTED-OTHER REASON

                                               RELATIVE  ADJUSTED    CUM
                                     ABSOLUTE    FREQ      FREQ      FREQ
CATEGORY LABEL                 CODE    FREQ      (PCT)     (PCT)     (PCT)

NO                               0.       62       0.5      34.0      34.0

YES                              1.      117       0.9      66.0     100.0

                                 8.    12162      97.8    MISSING    100.0

                                 9.       91       0.7    MISSING    100.0
                                       -------   -------   -------
                               TOTAL   12432     100.0     100.0

MEAN           0.654      STD ERR        0.036      MEDIAN          0.735
MODE           1.000      STD DEV        0.477      VARIANCE        0.228
KURTOSIS      -1.594      SKEWNESS      -0.651      RANGE           1.000
MINIMUM        0.0        MAXIMUM        1.000

VALID CASES      179      MISSING CASES 12253
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/26/79        PAGE  176

FILE   STUDENTU  (CREATION DATE = 09/15/79)
SUBFILE   ALL

CARD4

                                                RELATIVE   ADJUSTED     CUM
                                     ABSOLUTE     FREQ       FREQ       FREQ
CATEGORY LABEL               CODE      FREQ      (PCT)      (PCT)      (PCT)

                               4.     12432      100.0      100.0      100.0
                                     -------    -------    -------
                             TOTAL    12432      100.0      100.0

MEAN          4.000      STD ERR       0.0          MEDIAN          4.000
MODE          4.000      STD DEV       0.0          VARIANCE        0.0
RANGE         0.0        MINIMUM       4.000        MAXIMUM         4.000

VALID CASES   12432      MISSING CASES     0
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FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

U47BOTH    LENDER REJ GSL BEC OF OTHER

                   ADJ  CUM                       ADJ  CUM                       ADJ  CUM
   CODE     FREQ   PCT  PCT       CODE     FREQ   PCT  PCT       CODE     FREQ   PCT  PCT

     1.        3     3    3        10.        1     1   65        17.      [illegible]
     2.       34    35   38        11.        3     3   68        20.      [illegible]
     3.       10    10   48        12.        2     2   70        21.      [illegible]
  [illegible] [illegible]          13.  [illegible]               23.      [illegible]
     7.        7     7   57        15.       12    12   89
     8.        7     7   64        16.        4     4   93

                                  M I S S I N G   D A T A
   CODE     FREQ                  CODE     FREQ                   CODE     FREQ

     0.       19                  99.   [illegible]

MEAN           7.704      STD ERR        0.644      MEDIAN           5.500
MODE          [illegible] STD DEV    [illegible]    VARIANCE     [illegible]
KURTOSIS      -0.605      SKEWNESS   [illegible]    RANGE           22.000
MINIMUM        1.000      MAXIMUM       23.000

VALID CASES       98      MISSING CASES 12336
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STUDENT QUESTIONNAIRE TABULATIONS                                              09/24/79        PAGE  178

FILE    STUDENTU (CREATION DATE = 09/15/79)
SUBFILE   ALL

GSLATIHE  WAS GSL MADE BY SCHOOL ATTENDING ?

                                                    RELATIVE   ADJUSTED     CUM
                                        ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL                   CODE     FREQ       (PCT)      (PCT)      (PCT)

YES                                1.      418         3.4       39.1       39.1

NO                                 2.      650    [illegible] [illegible] [illegible]

                                   0.       54         0.4     MISSING     100.0

                                   8.     3846        30.9     MISSING     100.0

                                   9.     7464        60.0     MISSING     100.0
                                        -------     -------    -------
                                  TOTAL   12432       100.0      100.0

MEAN          1.609     STD ERR        0.015       MEDIAN        1.678
MODE          2.000     STD DEV     [illegible]    VARIANCE   [illegible]
KURTOSIS     -1.803     SKEWNESS    [illegible]    RANGE         1.000
MINIMUM       1.000     MAXIMUM        2.000

VALID CASES     1068    MISSING CASES 11364
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FILE     STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE    ALL

GSLS

                                              RELATIVE  ADJUSTED     CUM
                                   ABSOLUTE     FREQ      FREQ       FREQ
CATEGORY LABEL             CODE      FREQ      (PCT)     (PCT)      (PCT)

                             1.        55        0.4       8.0        8.0

                           [illegible]

                          1001.       174        1.4      25.4       54.1

                           [illegible]

                          2001.       190        1.5      27.8       97.4

                           [illegible]

                          3001.        13        0.1       1.9      100.0

                           [illegible]                   MISSING

                          9999.       840        6.8     MISSING    100.0
                                   -------    -------    -------
                          TOTAL    [illegible]  [illegible]  [illegible]

MEAN          1221.760      STD ERR        26.845      MEDIAN      1170.540
MODE          2001.000      STD DEV      [illegible]   VARIANCE  [illegible]
KURTOSIS        -1.133      SKEWNESS     [illegible]   RANGE       3000.000
MINIMUM          1.000      MAXIMUM      3001.000

VALID CASES        684      MISSING CASES  [illegible]
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STUDENT QUESTIONNAIRE TABULATIONS                                                 09/24/79          PAGE 100

FILE    STUDENTQ (CREATION DATE = 09/15/79)
SUBFILE   ALL

AGE

                                                     RELATIVE  ADJUSTED      CUM
                                          ABSOLUTE     FREQ      FREQ       FREQ
CATEGORY LABEL                     CODE     FREQ      (PCT)     (PCT)      (PCT)

                                    17.      173        1.4       1.4        1.4
                            [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
                                    20.     2535       20.4      20.9       43.0
                            [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
                                    22.     1487       12.0      12.2       71.1
                            [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
                                    24.      407        3.3       3.3       80.5
                            [illegible]     1048  [illegible]  [illegible]  [illegible]
                                    35.      446        3.6       3.7       97.7
                            [illegible]      170  [illegible]  [illegible]  [illegible]
                                    55.       79        0.6       0.7       99.8
                            [illegible]       27  [illegible]  [illegible]  [illegible]
                                     0.      280        2.3   MISSING      100.0
                                          -------    -------   -------
                                  TOTAL    12432  [illegible]  [illegible]

MEAN           22.374      STD ERR       0.049        MEDIAN      [illegible]
MODE      [illegible]      STD DEV  [illegible]       VARIANCE    [illegible]
KURTOSIS       19.586      SKEWNESS [illegible]       RANGE       [illegible]
MINIMUM        17.000      MAXIMUM      65.000

VALID CASES    12152       MISSING CASES   280
```

APPENDIX C

Distribution of Student Questionnaire Completion Rates

COMPLETION RATES FOR THE STUDENT QUESTIONNAIRE

Public Institutions

Four-year

AVERAGE: 50.2%

Less Than 30%	6
30-39	1
40-49	12
50-59	20
60-69	7
70-79	2
80-100	0

Two-year

AVERAGE: 56.1%

Less Than 30%	1
30-39	3
40-49	4
50-59	9
60-69	5
70-79	5
80-100	2

Private Institutions

Four-year

AVERAGE: 60.1%

Less Than 30%	0
30-39	5
40-49	5
50-59	8
60-69	21
70-79	7
80-100	5

COMPLETION RATES FOR THE STUDENT QUESTIONNAIRE (Continued)

Two-year

AVERAGE: 73.2%

Less Than 30%	0
30-39	0
40-49	0
50-59	1
60-69	3
70-79	4
80-100	2

Proprietary

AVERAGE: 75.1%

Less Than 30%	0
30-39	1
40-49	3
50-59	1
60-69	5
70-79	7
80-100	14